No. 15.] [July, 1879.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE ORIGIN OF THE SENSE OF SYMMETRY.

THERE are few peculiarities which seem at first sight more eminently characteristic of man, as distinguished from the lower animals, than his employment of symmetrical patterns for ornamental purposes. Whether we look at the rose windows of a Gothic cathedral or at the graceful tracery of a New Zealand canoe, at the beautiful designs of European decorative artists or at the regular tattooing of a Caroline Islander, we are alike struck by the special nature of the geometrical figures employed for the self-same object in the most diverse cases. And when we go back in time to the earliest prehistoric monuments of our race, we find the like regularity in the huge circles of Stonehenge or Abury, in the polished flints and arrowheads of the neolithic remains, nay, even to some rude extent in the roughly-chipped stone implements of the very first human inhabitants of the earth. Yet this last and qualified assertion shows us that the love for symmetry among mankind is something that has grown and developed during the whole of historical and prehistoric time: and we are consequently led to inquire what is the origin of the taste which we see thus displayed in every existing race of men. Obviously, we cannot find an answer to this question by examining such finished products of art as the Gothic cathedral or the New Zealand canoe. If we wish to trace the developed taste to its origin we

must begin by asking the simple question, why did man first take to the two primordial elements of symmetry, the straight line, and the circle or other regular curves?

So far as we know, no monkey ever draws a straight line, or ever makes a definite circular mark. But even the lowest men practise these primitive arts as it were instinctively. The monkey may crack a coco-nut or an egg-shell; he may perhaps even use it as a scoop to hold water for a single occasion; but he never cuts it into a regular cup with an even section. A savage, on the other hand, makes a calabash or an ostrich-egg into a definite and graceful vessel. The monkey uses a stone to break hard nutshells, but he never fashions it into a celt or a knife. A savage, on the other hand, makes his arrowheads and his club bilaterally symmetrical with an amount of care which puts to the blush his civilised competitors. So thoroughly distinctive of mankind is this love for regularity, that whenever we find an object artificially shaped into a symmetrical form, we at once regard it as a human product; we conclude that its maker was some animal sufficiently resembling ourselves to deserve the name of man. We have thus, in fact, informally recognised the taste for symmetry as a real differentia of humanity.

Yet if we look a little further into the question, we shall see that this apparent distinction between man and the lower animals, like all the other artificial distinctions whereby man seeks to hide the community of origin between himself and the brutes, fades away to a great extent upon closer consideration. There is no object to which symmetrical figures are more frequently applied than the house or hut. Not to take into account our own palaces, churches, and mansions, the houses of most modern savages are strikingly noticeable for their pretty circular or oval shape. So, too, the Swiss lake dwellings were regularly laid out in squares and rings: while the ground-plan of most other pre-historic villages, wherever recoverable, shows them to have contained domestic architecture of a strictly symmetrical character. The woodcuts in Dr. Schweinfurth's *Heart of Africa* and in Sir Charles Lyell's *Antiquity of Man* will best illustrate the nature of the patterns ordinarily employed. But when we examine the homes of those among the lower animals which construct themselves definite nests, we find that they are almost always marked by exactly similar symmetrical plans. The circle, the regular curves, the straight line, and the principle of bilaterality all enter into them quite as prominently as into the construction of human villages. Hence we are led to guess that a general tendency toward the production of symmetrical art-products may perhaps exist

throughout the whole animal world. If we examine a few cases in detail, we may possibly be able to estimate the worth of this conjecture, as well as to free ourselves from the conventional entanglements which beset the half-understood distinctions of instinctive and rational action.

The very lowest type of animal architecture can hardly be distinguished from mere organic growth. The coverings of echinoderms, such as the sea-urchin, are just as much results of simple unconscious development as are the bones of vertebrates. But in the mollusca we get a sort of intermediate stage; for though the shell is deposited by the mantle in a purely organic manner, yet the animal can slightly alter the direction of the whorls, so as to avoid an obstacle which had accidentally adhered to their surface. Thus the garden snail occasionally produces open spiral shells with disconnected whorls, resembling a corkscrew; while normally discoid species sometimes assume a turbinate form. These instances, however, scarcely differ from those of common monstrosities, to which indeed they are often clearly referable. But the cocoons of insects give us a nearer approach to externally-formed dwellings, and lead us naturally on to more advanced cases. In the web of the geometrical spider we see an excellent specimen of symmetrical workmanship of a very interesting sort: while in the hexagonal cells of honey-bees, in the curiously shaped nests of many wasps, and in the regularly planned hillocks of the termites, we find that the organised habits of the various species have resulted in the production of perfectly symmetrical figures. Numerous other instances amongst the articulata, such as the trap-doors of certain spiders and the neatly constructed nests and galleries of many ants, will at once occur to the biological reader: but further illustration would merely be tedious without adding weight to the analogy here suggested.

When we turn to the vertebrates, we find an abundance of similar constructive instincts. Besides the nests of ordinary birds, which are almost always approximately circular, there are certain special cases like those of the weaver-birds, in which the nest assumes a much greater definiteness and regularity of shape. The bower-birds, in addition to their own private nests, build common meeting-places or "assembly rooms" as they have been well called, from which they derive their English name. Amongst mammals, the beaver constructs for himself circular houses, together with straight dams, curved at the point where the stream runs strongest. The harvest mouse weaves a pretty little globular nest. Even the all but sightless mole excavates a series of galleries whose ground-plan displays a couple of regular circles, surrounding a spherical chamber, with definitely

arranged intercommunications. In fact, we see as a rule that wherever animals build themselves any but the rudest shelters or burrows, their architecture tends to assume a symmetrical shape.

It is of course quite beside the question to refer these habits to instinct, that blind and empty catchword of an extinct school of thought. No doubt the bee, the weaver-bird, and the beaver all work at the present time by inherited instinctive tendencies. But those tendencies are the result of ancestral habit; and the habit must have had a beginning at some time or other. The main differences between these cases and that of man resolve themselves on close inspection into two very simple points of detail: first, while in the beaver the building habit has become so far ingrained in the nervous system that it exhibits itself spontaneously and without the aid of teaching, in man it has never apparently become so ingrained as to be strictly instinctive: and secondly, while with the beaver the same kind of house is produced from generation to generation, with man circumstances are always producing modifications of many sorts, far more marked, however, amongst the civilised than amongst the savage races. Even these differences ultimately depend upon a single further fundamental difference, that while the relatively poor and fixed nervous centres of the lower animals have become stereotyped in particular directions, the relatively rich and modifiable nervous centres of man admit of much greater latitude in their constant adaptation to the changing phases of their environment.

Accordingly, we may conclude that primitive man shared with all other animals an inherent tendency towards the construction of regular figures. Whether he at first exerted his native bent in the erection of permanent buildings is indeed very doubtful, because the earliest men with whose remains we are acquainted appear to have been dwellers in caves and rock shelters. Yet we should recollect that such among these remains as have yet been explored are chiefly confined to northern latitudes; and as man in all probability was first evolved under a tropical climate, it is quite possible that in his southern home he may have very early built for himself such temporary huts as we still find in almost all warm countries. On the other hand, the existence at the present day of tribes like the Fuegians who have practically no shelter worthy of the name of huts, would seem to render it doubtful whether the art of building in its rudest shape was really a primitive acquisition of humanity. Indeed, I attach no special importance to the hut in itself, further than as illustrating the general continuity of habit between man and the lower animals. We ought not,

however, to forget that our nearest relatives, the anthropoid apes, construct themselves rude shelters.

A far more important question is that which relates to the origin of this common tendency towards symmetry in workmanship which we find running through the whole of human and animal architecture alike. And here I think we must trace its existence to the general nature of organic movement. Our muscles and limbs all act in a rhythmical manner, and the products of their activity have a certain general tendency to be symmetrical in accordance with the natural rhythm. Thus, to begin with obvious instances, in walking, the feet leave prints at certain regular distances: and if we carry a stick, its mark will similarly occur at measured intervals. So, too, if we make a sweep with a cane on the sand, the figure described is an arc of a circle. Again, if we sharpen a stake with a knife, we naturally make its tapering part at or about the middle. Or, if we pile up a snow house, after the fashion of Esquimaux and of Canadian schoolboys, standing in the middle as we work, we shall naturally produce a more or less correct circle. The whole tendency of all bodily acts, and therefore of all constructive acts, is towards a certain kind of rough symmetry. Just as the mouse produces a rude circular hole in a wainscot by biting all round alike, just as a bird produces a fairly circular nest by weaving in pieces all round alike, so a man produces a decently circular hut by building up mud all round alike.

The first among such buildings, human or animal, will naturally possess only a very incomplete and partial symmetry. But as the habit becomes strengthened, the symmetry will grow more and more complete, though by the action of different causes in the two instances. Amongst animals, as the process of building became gradually instinctive, greater regularity would necessarily appear; because the most symmetrical form is the type of all the other forms, with the individual divergences omitted. So, since the instinct in each individual represents the inherited habits of countless prior individuals, it must necessarily happen that instinctive actions will grow more and more typical, will conform more and more to the central plan with less and less of accidental variation. That this is really the genesis of symmetrical building amongst animals we may infer even *à posteriori;* because we find every stage from the rudest to the most finished structures, actually in existence. Thus amongst bees, there are some in which the cell-making instinct has only gone a very little way: while there are others, like the honey-bee, in which it produces the most perfect hexagonal shapes. Again, amongst birds, there are some, like the night-jars whose nests are a mere rough collection of twigs

and stubble; others, like the humming-birds, whose æsthetic instincts lead them to build very round nests, completely lined with the softest materials, and decorated outside with interwoven feathers. With man, on the other hand, increase of symmetry is gained not by habit becoming instinctive, but by the intervention of the intellect in a manner hereafter to be examined.

The mere rhythmical play of limbs and muscles thus gives us what we may call the active factor in the production of a feeling for symmetry. The passive factor is given us by the general existence of symmetry in nature, amongst organic products at least.

Every leaf (roughly speaking) consists of a bilaterally symmetrical mass of green, sometimes simple, sometimes composed of many corresponding leaflets. Several of these, as in the horse-chestnut, the palma christi, and the acacias, are extremely noticeable for their regularity. The fronds of ferns show us a still higher degree of symmetry and correspondence in parts. The waving branches of palms, the circular arrangement of the foliage in aloes, yuccas, and numerous other liliaceous plants, especially of the tropics, and the alternate or whorled disposition of the leaves upon the axis in all plants, are facts of a similar sort. More noteworthy in the eyes of primitive man, however, are the bright-coloured flowers, all of which exhibit symmetry of the most varied types. Some, like the dog-rose and daisy head, are circular or radial; others, like snapdragon and salvia, are bilateral; yet others, like the iris and the snow-drop, display curious variations on the ordinary form. Not less important are the shapes of fruits; spherical, like the orange and cherry; bilateral, like the pear and peach; beaded, like the raspberry and mulberry. These again are often made up of symmetrical parts, as in the septa of the orange and the pomegranate; or are marked internally with symmetrical or radial patterns, as in the pine-apple and star-apple. Finally, the arrangement of the fruits upon the axis is often itself symmetrical, as in the head of wheat or barley, and in the "clock" of the dandelion or the thistle.

Animal forms would impress the same expectation of symmetry yet more deeply on the primitive mind. The radial distribution of parts in the star-fish and sea-urchin; the twin valves of half the molluscs, and the discoid or turbinate shells of the other half; the corresponding wings of the butterfly or the beetle; the whole form of the mammal or the bird—all these display some variety of symmetry in a most marked and unmistakable manner. Still more do certain special parts of animal organisms, which are particularly employed by primitive man in his early arts. The twin horns of deer and antelopes,

the two blades of a feather, the tusks of elephants and wild boars, the very bones and skull used as implements or vessels, are strikingly symmetrical both in their wholes and their component pieces. Above all, however, we must place the influence of the human figure and features themselves, the bilateral symmetry of legs and arms, of eyes and ears, of nose, mouth, and cheeks, which strikes every child and every savage so forcibly, and which imprints itself upon all the earliest attempts at imitative art, from the picture-writing of the American Indian to the rude human shapes drawn in chalk by English boys upon wall or black-board. In every one of them we see the same wooden arrangement of a round head fixed upon a straight body, with two equal arms and legs, diverging at exactly the same angle on either side.

Notice, once more, that the symmetrical objects in nature are exactly those with which primitive man has most to interest himself. The fruits and berries which he searches for food in the tropical forest; the shell-fish and crustaceans which eke out his subsistence on the Baltic shore; the fish which he catches in his Swiss lakes; the stags, the antelopes, and the birds, which he brings down with his arrow, his hatchet, or his boomerang; the feathers, flowers, leaf-mats, cowries, seeds, and crystals with which he adorns himself—are among the most markedly symmetrical products of the organic world. The reindeer and the mammoth, whose horns and tusks form his earliest material for incipient works of art; the untilled cereals whose heads he gathers for winter use; the beasts whose skins he employs for decoration; the very fossil echini and rhynchonellæ which he drills to make his primæval necklets—all impress the same idea upon his developing mind. And the limbs or features of his chosen squaw, not yet a mere domestic drudge like the Australian jin, but somewhat of a helpmate for the lord of the forest, aid in fixing the notion of symmetry still more deeply in his brain as a natural element of beauty. For we must never forget that æsthetic feelings, from first to last, as Mr. Herbert Spencer has pointed out, are closely interwoven with that most powerful of impulses which, purified and intensified into human love, forms finally the source of inspiration for half our highest poetry and half our noblest art.

One other predisposing cause of a passive sort we must notice before we pass on to the actual evolution of the taste for symmetry. Many objects used as vessels or implements by primitive man are not only themselves symmetrical but must almost necessarily undergo symmetrical alterations to make them useful for human purposes. Thus a coco-nut, a calabash, or an ostrich-egg is originally oval in shape. The monkey which

cracks and eats the kernel or the yolk destroys the symmetry of the object. But if man wishes to make himself a cup or a water-bottle, he must cut the shell instead of breaking it: and the cutting will almost inevitably result in a symmetrical vessel. So far as it fails to be symmetrical, so much the less of its content is utilised; and therefore there will always be a tendency for such vessels to grow more and more accurate in their sections. So, too, with bamboos or sticks of wood. Themselves circular in segment and straight in longitude, they can only be used in more or less symmetrical arrangements. Posts for huts made from these materials must stand perpendicularly. Chairs, stools, or benches will topple over unless their supports are evenly placed and straight in line. Single joints of large bamboos, used as vessels for water or provisions, must be cut off just below each joint. Similarly with basket work and many other primitive arts. The naturally symmetrical material must be symmetrically employed for domestic purposes or it fails to attain the object of the maker.

And now that we have considered these two original elements in the production of a habit or taste in mankind for making symmetrical objects—the active element, due to the rhythm and recurrence of organic movements, and the passive element, due to the constant observation of symmetry in external nature—we may go back to consider the steps by which primæval man first applied the notions thus evolved to the production of weapons or implements.

In the first place we may notice that the very idea of an implement is closely bound up with that of artificial symmetry. An evolving anthropoid, as Sir John Lubbock has pointed out, might accidentally splinter a flint with which he was cracking a nut; and he would then naturally make use of the sharp fragments as knives.[1] But such very rude implements as these would scarcely deserve the name. The first forward step would be taken when the anthropoid began consciously to aim at regularity in his flint fragments. That is precisely the stage at which we begin to call him a man. How very rough is the regularity at first attained, all who have examined palæolithic stone implements know well enough. Yet even in these very shapeless masses of chipped flint, we find a clear recognition of symmetry as the aim and final intention of the artist, however imperfectly realised. The hatchets are broken into a rude approximate regularity, both laterally and longitudinally, so that two transverse sections will each exhibit a certain approach to

[1] If, however, the Abbé Bourgeois is right in regarding his tertiary flints as human products, then the earliest stone implements were cracked by means of fire, and only retrimmed by the hand.

symmetry. Indeed, if we consider the slight means at the disposal of the hatchet-maker, the wonder is rather that he should have taken so much pains to ensure regularity than that the regularity actually attained should be so imperfect.

The arrowhead demands even more attention to symmetry than the hatchet. It is true, barbed arrowheads were probably by no means the earliest form, the very first lances or arrows being tipped, apparently, with mere sharp points of flint. But as soon as the principle of the barb was discovered, we get a great advance in the direction of a regularly-shaped bilateral weapon. Arrowheads of this type, especially in bone, are common during the palæolithic age, and often show considerable pains and workmanship.

The other art-products of the drift and cave period also display no little feeling for symmetry. This is especially noticeable in the horn or bone implements, such as knife-handles, fish-hooks, and needles; and in the whistles formed from small bones. The taste is more passively displayed in the drilled fossil shells and pebbles, apparently employed for personal decoration; and we can hardly doubt, though we have no positive evidence, that flowers and feathers were also used during the same period for like æsthetic purposes.

But just in proportion as man went on framing implements and vessels for himself in symmetrical forms, the notion of symmetry as a proof and test of human workmanship would grow stronger and more developed from day to day. The art of grinding stone implements necessarily brings about a great improvement in this respect. By the neolithic age we find the conception so deeply ingrained that all human products have become scrupulously even and regular, and a high degree of artistic finish has been attained. We can see clearly that symmetry is now prized for its own sake, and that pains are taken to make every weapon, every tool, and every vessel not only effective but also workmanlike and thorough. And we must remember that from age to age those tribes which acquired the greatest skill in the manufacture of weapons would gain an advantage over their neighbours, not only directly by the superiority of their arms, but also indirectly by the increased power of muscular co-ordination which would be developed in the manufacturing process.

We have necessarily very little evidence as to the origin of most other arts, whose products are less imperishable than stone hatchets and arrowheads. But it is clear that they must have greatly increased the general habit of producing symmetrical objects and the general taste for the symmetry so produced. Thus the arts of wattling and weaving, essentially identical,

yield alternate patterns. If pigments be used in staining the material, as with the baskets of the American Indians and the rude cloth of some South Sea Islanders, the result will be a regular alternation of colours which often produces a very pretty effect. In like manner, the art of pottery (developed as early as the age of the Danish shell-mounds) helps on the taste for symmetry; because all early pottery is modelled upon natural shapes, such as gourds, calabashes, nutshells, eggs, and perhaps skulls. The native markings upon these objects, when they possess any, will of course be symmetrical, and will accordingly transfer their symmetry to the artificial vessels. Other modes of decoration spring up in analogous manners. For example, it has been shown that a very common string-course pattern found on rude pottery was originally due to the marks of a twisted rope, wound round the jar or bowl: and when the rope was no longer used, the marks were roughly imitated by splashes on the soft clay made with a knife. Here we see the conscious desire for ornamentation begotten by its common occurrence through adventitious circumstances.

The art of navigation must also have contributed largely to form the taste for symmetry. The canoe must be hollowed out of a straight log, and its sides must be evenly balanced so as to swim true in the water. The paddle must have a straight handle and an even flattened blade to guide the canoe aright. In this case and in that of weapons, we see in part the origin of the preference for straight lines over irregular curves. For in the same way the arrow must be perfectly straight to hit the mark; and the spear or lance must be perfectly straight to take a steady aim. Even the club and the stick used in walking will perform their work much the better for being perfectly straight. All these cases may go side by side with the props or pillars used in building the hut, the wattles employed for its walls, and the beams or cross pieces which make the conical roof. The practical value of the straight line must soon ensure it a recognised place in all primitive arts.

A further step in the same direction is that of conscious numerical equality. Thus, beads of different shapes and colours are not strung by savages, nor were probably by primitive man, in irregular order, but in some definite numerical proportion, say in the recurrent form B, A, B; or C, B, A, B, C; or C, B, B, A, B, B, C. So, too, feathers or cowries are arranged in regular patterns, according to size and length; or are alternated in colour; or are placed together in diamonds or quincunx order. Similarly with the posts of a hut, which are placed at definite intervals, and perhaps with alternating sizes. This kind of symmetry is naturally suggested by the contemplation of organic

bodies, and in some instances is actually made almost necessary by the proportions of the material.

In architecture, the cromlech offers a good example of such rudimentary symmetry. The stone circles and avenues show us a more developed form of the same principle. The posts of the old Achaian hut thus grew slowly into the regular columns of the Doric or Ionic temple; and the fixed proportions which these buildings maintained throughout their purest age probably represent on an enlarged scale the original dimensions of the herdsman's cottage. Architecture, indeed, is preeminently the symmetrical art, in every stage of its development, and it is partly for this reason that I have laid so much stress upon the building instinct of the lower animals and its relation to the habit of building in early man.

As soon as the taste for symmetry has become fixed and definite in these various ways, it will follow that symmetrical ornamentation will be consciously applied to those objects in which decoration is a desired effect. Thus the club of the chief comes to be delicately sculptured with dainty tracery, and the royal canoe to be ornamented with regular and intricate patterns. In this manner the feeling for fine workmanship grows stronger and stronger, till at last we habitually think of detail in symmetrical patterns, even in natural products, through the analogy of human handicraft. Thus we speak of the delicate sculpture on a shell, the exquisite tracery on an ammonite, the minute carving of an echinus, the intricate lacework in a microscopic diatom. The idea of a maker or workman, definitely or indefinitely present to our minds, is always bound up with our admiration for these beautiful objects: and when we wish to sum up our pleasure in beholding them, we call them gems or masterpieces of nature's handiwork. It is the notion of human skill, actual or ideal, which gives us our standard for judging of minute symmetrical patterns. In human works, as for instance a Hindoo chased vase or a piece of Chinese ivory carving, the more delicate the detail, the greater we know was the labour and the skill expended, and hence the greater our admiration. Accordingly, we transfer the same feeling to nature, and think of the results attained by organisation or crystallisation as though they had been attained by deliberate design.

Another point deserving notice is the part played by repetition in ornamentation. Almost every pattern consists of certain separate parts repeated at regular intervals. Take as an excellent example the plaster "roses" with which builders disfigure the centres of our ceilings. Now, in most cases, this repetition produces an excellent decorative effect, and indeed it lies at the very root of almost all decorative art. Yet at the

beginning it naturally results from the mere paucity of the materials at the command of the decorator. Thus, in the Polynesian Islands, cloth is stamped and dyed with really pretty patterns in the following very simple manner. Two stamps are prepared, having square dies, on one of which say, a cross is cut, and on the other a diamond. These stamps are then stained with dark red dye and applied to the cloth alternately; and the result is a very artistic chequer pattern of crosses and diamonds. In the same way, a wedge-shaped die, applied successively round a fixed centre, will form a circular pattern; and a single application at each corner of a handkerchief will complete the decoration very prettily. In fact, repetition of a single figure (which need not itself be symmetrical) is at once one of the simplest and most effective devices of ornamental art.

The longer man continues to build and to manufacture, the stronger do these habits grow of symmetry in useful objects, and of decoration for mere ornament's sake. Every human product comes to be definitely shaped, until we at last forget how universal is the practice, even on account of its very universality. But we need only look around our own rooms to notice the straight lines and rectangular figures of floor, walls, ceiling, doors, and windows; the regular breaking up of the last into panes and panels; the square, oblong, round, or oval tables; the shape of the chairs, sofas and ottomans; the mantelpiece, fireplace, grate and fender; the pattern on the carpet, wall-paper and curtains; the very door-handles, bell-pulls, gas-brackets and key-hole-shields. Not an object in our modern human world which does not bear manifold marks of symmetrical design. It is worth while, in this connexion, merely to take up the poker and observe what an immense amount of workmanship is involved in the various kinds of symmetry which occur in its fluted knob, its cylindrical shaft, and its square extremity. Ages of previous æsthetic culture are presupposed in our kitchen fire-irons.

And now the question naturally arises, why is symmetry thus pleasing to the human mind? I have already hinted the answer to the question in great part, but we shall gain in clearness by once more putting the problem in this definite form. In the first place, the high position which symmetry occupies in human ideas of beauty is doubtless largely due to the developed intellectual faculties of man. There can be little hesitation in admitting, it is true, that the lower animals share this feeling to some extent, at least if Mr. Darwin be correct in attributing to sexual selection the ball-and-socket ornamentation of the argus-pheasant, the magnificent plumage of the lyre-bird, and the

gracefully spiral horns of the Koodoo antelope. But the intellectual superiority of man makes him far more capable than any other animal of deriving pleasure from that order and regularity which are the central features of symmetry. The first germ of the taste must therefore be set down to the recognition of an intelligible plan as distinct from a mere chaos. There is probably no savage so low as not to perceive the superiority in this respect of a fern to a cabbage-leaf, or of a carved club to a rough and shapeless stick. And it may not be irrelevant here to note that the flora of the tropics, where we have reason to believe man was first developed, is largely distinguished from the flora of the temperate zone by its much greater symmetry of arrangement. The radial principle in the various palms, the banana, the aloe, the bromelias, the bamboos, the tree-ferns, the club-mosses, and the cactuses, is one of the first peculiarities which strikes the visitor on landing in a tropical country; and it may be realised to some extent even in the hothouses of Kew and the Jardin des Plantes. It is not, perhaps, extravagant to suppose that this symmetrical arrangement of nature on a large scale may have had some influence in quickening the primitive love for symmetry, just as I believe the great tropical fruits and flowers, and the beautiful plumes of tropical birds, had some influence in quickening the primitive love for bright colours. At any rate, we may hold it as certain that the coco-nuts, calabashes, ostrich-eggs, gourds, cowries, and bamboo stems of equatorial climates have been of great practical service in originating the use of symmetrical vessels, dwellings, and furniture amongst early man.

Next to the original pleasure of a comprehensible arrangement, we must place the inherited effect of usage. The more man grew accustomed to be surrounded by symmetrical objects, the more would he demand symmetry in all articles of human manufacture. A rough or unshapely implement he would naturally reject as inferior; while a finished and shapely one would recommend itself to him as the best and handsomest. Here, too, he would be partly determined by practical utility, which generally coincides (roughly speaking) with artistic finish. For just as we saw that the straightest arrow flies best to its mark, so does the roundest stone fit best in the sling, and the smoothest spear-head pierce most easily through the hide of wild beasts or the enemy's skull. And thus utility goes hand in hand with beauty, as the principle of evolution would teach us to expect even *à priori* that it would do.

Finally, we get the pleasure of human handicraft, a distant form of sympathy, not unmixed with admiration for skill. When the symmetry and the workmanship are merely such as

we find in everyday life, we feel this pleasure only to a very slight extent. But when the skill displayed is very great, as in the marvellous lattice screens of wrought marble which adorn so many works of Indian architecture, or in the beautiful tracery of an Admiralty Islander's club, or in the rose window of an English cathedral, our feeling becomes one of distinct æsthetic pleasure, in which the elements of sympathy and admiration are very obviously recognisable. And in the case of natural productions, we read-in by analogy a similar admiration for the being or entity to whom we actually or implicitly assign their creation.

Hence it will be seen that the pleasure in symmetry is far more derivative and intellectual than the pleasure in colour or in simple musical sound, both of which are comparatively primitive and sensuous. At the same time it is a pleasure which can be shared and appreciated by many savages whom we are accustomed to place very low in the scale of humanity.

A point of some interest is connected with the old dispute as to the line of beauty. Looking at the question from a scientific and inductive stand-point, it may be said that the straight line represents *practical beauty*, and the curve *ornamental beauty*. The straight line is the best and simplest boundary, on the whole, for houses, walls, furniture, boxes, architectural details, roads, streets, canals, railways; the shortest route for the path of a ship, a wain, an army, a moving body generally; the natural limit for a book, a paper, a piece of cloth, a brick, a plank of wood, and in short for most raw material. Even in fine art, strictly so called, a straight and rectangular boundary is often convenient; and I suppose Mr. Ruskin himself would hardly demand that all pictures should cover an oval or circular canvas and have curved frames. A glance around the room will show the reader how largely and necessarily the straight line enters into both the constructive and decorative part of his surroundings. But the curved line is certainly the chosen ornamental contour. It may of course be occasionally employed for mere practical purposes, as in an arch, a bow window, a bowl, a ship-timber, or possibly a barrel: yet even in these it possesses a certain special beauty of its own. In most cases, however, it is used for decorative effect alone, and in the hands of savages it is employed with admirable results in tattooing and in ornamental work generally. Amongst ourselves, it contributes to the beauty of all architecture and of all internal decoration: and even where it has been lavished with excessive ardour, as upon furniture, gas-hangings, and the other "solicitous wrigglings" which offend against the most cultivated taste, it must be accepted as accurately reflecting the general æsthetic

sensibility of average European man. The modern artistic demand for "simplicity of outline" is a reaction against the ordinary desire to obtain the greatest possible amount of ornamental curvature, in season or out of season; because the ordinary mind is pleased with external twists and twirls which give dignity and importance, at the cost, as others may think, of simple beauty and appropriateness.

The love of symmetry, once introduced, rapidly grows through the action of all the influences already enumerated, and at length induces a certain reaction. Early imitative art, as we see not only in the pictures drawn by savages, but even in the highly developed paintings and bas-reliefs of the Egyptians and Assyrians, usually assumes a symmetrical shape. The common and well-known figures of Pasht afford excellent examples which must be familiar to every reader:—a cat-faced goddess, seated bolt upright on a chair or throne, with ankles and feet set together, and either hand placed symmetrically upon its corresponding knee. Gradually, however, a spirit of discontent sets in against this formal symmetry. Some bolder artist observes that mankind in the actuality, though possessing typically bilateral bodies, do not habitually hold themselves in such stiff and abstractly human attitudes. Even in Egyptian sculpture, and much more in Egyptian painting, we get occasional variations from the traditional positions: and there is at least one group of statuary in the British Museum, as early as the IXth Dynasty, which is almost Greek in the natural pose of its two figures—a husband and wife, seated side by side as they might have sat in actual life. But it is not till the rise of Hellenic sculpture that we find symmetry carefully eschewed in imitative works. The fundamental distinction of imitative and decorative art begins with the Greeks. Before them, almost all painting and sculpture was half ornamental, half representative in character: it was they who first drew the definite line between the two, and thoroughly emancipated imitative art from symmetrical arrangements. Nevertheless, we must not forget that an Egyptian would probably have preferred his own regular and carefully measured figures to the unsymmetrical and free pose of a Hellenic Apollo: just as the negro of our own day prefers a rude full-faced portrait to a profile, and asks with critical displeasure why the artist has given him only one eye.

Before quitting the subject, I cannot avoid briefly noticing the special form which this reaction against symmetry has taken amongst the Japanese. No other nation, outside the regular line of Helleno-Italian and Western European civilisation, has ever advanced so far in imitative art as the people of Japan. They have studied nature at first hand, and have succeeded in

completely throwing aside the primitive symmetrical treatment of the human and animal form. But at the same time, they have gone much further than all other nations in their systematic rejection of symmetry even in comparatively decorative art. Whether this habit or tendency is of artistic merit or otherwise, I shall not attempt to determine, since it is well to keep critical questions quite apart from such a positive discussion as that upon which we are now engaged. But it is at least certain that the Japanese do, as a matter of fact, carefully avoid symmetrical arrangement of figures, patterns, or designs, even on fans, vases, fictile ware, and other ornamental objects. It is this deliberate and conscious attempt at asymmetry which gives to Japanese workmanship much of its distinctive quaintness. Apparently, the Japanese artists first observed that absolute symmetry was rarely found in concrete nature, though it is almost always found in the abstract form;[1] and hence they began a revolution somewhat analogous to that which produced the later Hellenic art. But when the revolution was once set up, they probably grew to look upon asymmetry as a differentiating peculiarity of Japanese civilised art, when compared with the rude workmanship of other or earlier races. Moreover, this peculiarity fell in naturally with a generic tendency of the Turanian mind, which has always sought after the *odd* as a separate element of æsthetic feeling. In a higher way, too, it encouraged artistic freedom; and this is the special quality which recommends Japanese art to western connoisseurs. Of course, it must not be supposed that the Japanese utterly and entirely abjure the employment of symmetry: their plates and cups are on the whole just as circular as our own: but they do reject the symmetrical arrangement of decorative designs in many cases where European art has almost invariably employed it. This subject, however, though interesting in itself, would lead us too far afield from the simple consideration of symmetry.

In conclusion, I would only add that the treatment of so large a theme as that of the causes which produced our human love for symmetry can be but very roughly sketched in a single short paper. It must suffice to suggest briefly the most important steps, leaving the minor details to be filled in from the knowledge of the reader.

GRANT ALLEN.

[1] This assertion may seem at first sight opposed to what has been previously said with regard to the symmetry of natural forms; but the contradiction is only apparent. Every leaf upon a tree is in itself symmetrical; but the tree as a whole, and each leaf as seen in perspective, is unsymmetrical. Early man represents the object conventionally as he conceives it, in its abstract regularity: the advanced artist represents it accurately as he sees it, in its accidental variety and freedom.

II.—THE SENTIMENT OF RATIONALITY.

I.

WHAT is the task which philosophers set themselves to perform? And why do they philosophise at all? Almost every one will immediately reply: They desire to attain a conception of the frame of things which shall on the whole be more rational than the rather fragmentary and chaotic one which everyone by gift of nature carries about with him under his hat. But suppose this rational conception attained by the philosopher, how is he to recognise it for what it is, and not let it slip through ignorance? The only answer can be that he will recognise its rationality as he recognises everything else, by certain subjective marks with which it affects him. When he gets the marks he may know that he has got the rationality.

What then are the marks? A strong feeling of ease, peace, rest, is one of them. The transition from a state of puzzle and perplexity to rational comprehension is full of lively relief and pleasure.

But this relief seems to be a negative rather than a positive character. Shall we then say that the feeling of rationality is constituted merely by the absence of any feeling of irrationality? I think there are very good grounds for upholding such a view. All feeling whatever, in the light of certain recent psychological speculations, seems to depend for its physical condition not on simple discharge of nerve-currents, but on their discharge under arrest, impediment or resistance. Just as we feel no particular pleasure when we breathe freely, but a very intense feeling of distress when the respiratory motions are prevented; so any unobstructed tendency to action discharges itself without the production of much cogitative accompaniment, and any perfectly fluent course of thought awakens but little feeling. But when the movement is inhibited or when the thought meets with difficulties, we experience a distress which yields to an opposite feeling of pleasure as fast as the obstacle is overcome. It is only when the distress is upon us that we can be said to strive, to crave, or to aspire. When enjoying plenary freedom to energise either in the way of motion or of thought, we are in a sort of anæsthetic state in which we might say with Walt Whitman, if we cared to say anything about ourselves at such times, "I am sufficient as I am". This feeling of the sufficiency of the present moment, of its absoluteness—this absence of all need to explain it, account for it or justify it—is what I call the

Sentiment of Rationality. As soon, in short, as we are enabled from any cause whatever to think of a thing with perfect fluency, that thing seems to us rational.

Why we should constantly gravitate towards the attainment of such fluency cannot here be said. As this is not an ethical but a psychological essay, it is quite sufficient for our purposes to lay it down as an empirical fact that we strive to formulate rationally a tangled mass of fact by a propensity as natural and invincible as that which makes us exchange a hard high stool for an arm-chair or prefer travelling by railroad to riding in a springless cart.

Whatever modes of conceiving the cosmos facilitate this fluency of our thought, produce the sentiment of rationality. Conceived in such modes Being vouches for itself and needs no further philosophic formulation. But so long as mutually obstructive elements are involved in the conception, the pent-up irritated mind recoiling on its present consciousness will criticise it, worry over it, and never cease in its attempts to discover some new mode of formulation which may give it escape from the irrationality of its actual ideas.

Now mental ease and freedom may be obtained in various ways. Nothing is more familiar than the way in which mere custom makes us at home with ideas or circumstances which, when new, filled the mind with curiosity and the need of explanation. There is no more common sight than that of men's mental worry about things incongruous with personal desire, and their thoughtless incurious acceptance of whatever happens to harmonise with their subjective ends. The existence of evil forms a "mystery"—a "problem": there is no "problem of happiness". But, on the other hand, purely theoretic processes may produce the same mental peace which custom and congruity with our native impulses in other cases give; and we have forthwith to discover how it is that so many processes can produce the same result, and how Philosophy, by emulating or using the means of all, may attain to a conception of the world which shall be rational in the maximum degree, or be warranted in the most composite manner against the inroads of mental unrest or discontent.

II.

It will be best to take up first the theoretic way. The facts of the world in their sensible diversity are always before us, but the philosophic need craves that they should be conceived in such a way as to satisfy the sentiment of rationality. The philosophic quest then is the quest of a conception. What now

is a *conception?* It is a *teleological instrument.* It is a partial aspect of a thing which *for our purpose* we regard as its essential aspect, as the representative of the entire thing. In comparison with this aspect, whatever other properties and qualities the thing may have, are unimportant accidents which we may without blame ignore. But the essence, the ground of conception, varies with the end we have in view. A substance like oil has as many different essences as it has uses to different individuals. One man conceives it as a combustible, another as a lubricator, another as a food; the chemist thinks of it as a hydro-carbon; the furniture-maker as a darkener of wood; the speculator as a commodity whose market price to-day is this and to-morrow that. The soap-boiler, the physicist, the clothes-scourer severally ascribe to it other essences in relation to their needs. Ueberweg's doctrine[1] that the essential quality of a thing is the quality of most *worth,* is strictly true; but Ueberweg has failed to note that the worth is wholly relative to the temporary interests of the conceiver. And, even, when his interest is distinctly defined in his own mind, the discrimination of the quality in the object which has the closest connexion with it, is a thing which no rules can teach. The only *à priori* advice that can be given to a man embarking on life with a certain purpose is the somewhat barren counsel: Be sure that in the circumstances that meet you, you attend to the *right* ones for your purpose. To pick out the right ones is the measure of the man. "Millions," says Hartmann, "stare at the phenomenon before a *genialer Kopf* pounces on the concept."[2] The genius is simply he to whom, when he opens his eyes upon the world, the "right" characters are the prominent ones. The fool is he who, with the same purposes as the genius, infallibly gets his attention tangled amid the accidents.

Schopenhauer expresses well this ultimate truth when he says that Intuition (by which in this passage he means the power to distinguish at a glance the essence amid the accidents) "is not only the source of all knowledge, but is knowledge *κατ' ἐξοχήν* . . . is real *insight.* . . . *Wisdom,* the true view of life, the right look at things, and the judgment that hits the mark, proceed from the mode in which the man conceives the world which lies before him . . . He who excels in this talent knows the (Platonic) ideas of the world and of life. Every case he looks at stands for countless cases; more and more he goes on to conceive of each thing in accordance with its true nature, and his acts like his judgments bear the stamp of his insight. Gradually his face too acquires the straight and

[1] *Logic,* English tr., p. 139.
[2] *Philosophie des Unbewussten,* 2te Auflage, p. 249.

piercing look, the expression of reason, and at last of wisdom. For the direct sight of essences alone can set its mark upon the face. Abstract knowledge about them has no such effect."[1]

The right conception for the philosopher depends then on his interests. Now the interest which he has above other men is that of reducing the manifold in thought to simple form. We can no more say why the philosopher is more peculiarly sensitive to this delight, than we can explain the passion some persons have for matching colours or for arranging cards in a game of solitaire. All these passions resemble each other in one point; they are all illustrations of what may be called the æsthetic Principle of Ease. Our pleasure at finding that a chaos of facts is at bottom the expression of a single underlying fact is like the relief of the musician at resolving a confused mass of sound into melodic or harmonic order. The simplified result is handled with far less mental effort than the original data; and a philosophic conception of nature is thus in no metaphorical sense a labour-saving contrivance. The passion for parsimony, for economy of means in thought, is thus the philosophic passion *par excellence*, and any character or aspect of the world's phenomena which gathers up their diversity into simplicity will gratify that passion, and in the philosopher's mind stand for that essence of things compared with which all their other determinations may by him be overlooked.

Mere universality or extensiveness is then the one mark the philosopher's conceptions must possess. Unless they appear in an enormous number of cases they will not bring the relief which is his main theoretic need. The knowledge of things by their causes, which is often given as a definition of rational knowledge, is useless to him unless the causes converge to a minimum number whilst still producing the maximum number of effects. The more multiple are the instances he can see to be cases of his fundamental concept, the more flowingly does his mind rove from fact to fact in the world. The phenomenal transitions are no real transitions; each item is the same old friend with a slightly altered dress. This passion for unifying things may gratify itself, as we all know, at truth's expense. Everyone has friends bent on system and everyone has observed how, when their system has once taken definite shape, they become absolutely blind and insensible to the most flagrant facts which cannot be made to fit into it. The ignoring of data is, in fact, the easiest and most popular mode of obtaining unity in one's thought.

But leaving these vulgar excesses let us glance briefly at some

[1] *Welt als Wille u. Vorstellung*, II., p. 83

more dignified contemporary examples of the hypertrophy of the unifying passion.

Its ideal goal gets permanent expression in the great notion of Substance, the underlying One in which all differences are reconciled. D'Alembert's often quoted lines express the postulate in its most abstract shape: "L'univers pour qui saurait l'embrasser d'un seul point de vue ne serait, s'il est permis de le dire, qu'un fait unique et une grande verité". Accordingly Mr. Spencer, after saying on page 158 of the first volume of his *Psychology*, that "no effort enables us to assimilate Feeling and Motion, they have nothing in common," cannot refrain on page 162 from invoking abruptly an "Unconditional Being common to the two".

The craving for Monism at any cost is the parent of the entire evolutionist movement of our day, so far as it pretends to be more than history. The Philosophy of Evolution tries to show how the world at any given time may be conceived as absolutely identical, except in appearance, with itself at all past times. What it most abhors is the admission of anything which, appearing at a given point, should be judged essentially other than what went before. Notwithstanding the *lacunae* in Mr. Spencer's system; notwithstanding the vagueness of his terms; in spite of the sort of jugglery by which his use of the word "nascent" is made to veil the introduction of new primordial factors like consciousness, as if, like the girl in *Midshipman Easy*, he could excuse the illegitimacy of an infant, by saying it was a very little one—in spite of all this, I say, Mr. Spencer is, and is bound to be, the most popular of all philosophers, because more than any other he seeks to appease our strongest theoretic craving. To undiscriminating minds his system will be a sop; to acute ones a programme full of suggestiveness.

When Lewes asserts in one place that the nerve-process and the feeling which accompanies it are not two things but only two "aspects" of one and the same thing, whilst in other passages he seems to imply that the cognitive feeling and the outward thing cognised (which is always other than the nerve-process accompanying the cognitive act) are again one thing in two aspects (giving us thereby as the ultimate truth One Thing in Three Aspects, very much as Trinitarian Christians affirm it to be One God in Three Persons),—the vagueness of his mode only testifies to the imperiousness of his need of unity.

The crowning feat of unification at any cost is seen in the Hegelian denial of the Principle of Contradiction. One who is willing to allow that A and not-A are one, can be checked by few farther difficulties in Philosophy.

III.

But alongside of the passion for simplification, there exists a sister passion which in some minds—though they perhaps form the minority—is its rival. This is the passion for distinguishing; it is the impulse to be *acquainted* with the parts rather than to comprehend the whole. Loyalty to clearness and integrity of perception, dislike of blurred outlines, of vague identifications, are its characteristics. It loves to recognise particulars in their full completeness, and the more of these it can carry the happier it is. It is the mind of Cuvier *versus* St. Hilaire, of Hume *versus* Spinoza. It prefers any amount of incoherence, abruptness and fragmentariness (so long as the literal details of the separate facts are saved) to a fallacious unity which swamps things rather than explains them.

Clearness *versus* Simplicity is then the theoretic dilemma, and a man's philosophic attitude is determined by the balance in him of these two cravings. When John Mill insists that the ultimate laws of nature cannot possibly be less numerous than the distinguishable qualities of sensation which we possess, he speaks in the name of this æsthetic demand for clearness. When Prof. Bain says[1]:—"There is surely nothing to be dissatisfied with, or to complain of in the circumstance that the elements of our experience are in the last resort two and not one . . . Instead of our being 'unfortunate' in not being able to know the essence of either matter or mind—in not comprehending their union, our misfortune would rather be to have to know anything different from what we do know,"—he is animated by a like motive. All makers of architectonic systems like that of Kant, all multipliers of original principles, all dislikers of vague monotony, whether it bear the character of Eleatic stagnancy or of Heraclitic change, obey this tendency. *Ultimate kinds* of feeling bound together in harmony by laws, which themselves are *ultimate kinds* of relation, form the theoretic resting-place of such philosophers.

The unconditional demand which this need makes of a philosophy is that its fundamental terms should be representable. Phenomena are analysable into feelings and relations. Causality is a relation between two feelings. To abstract the relation from the feelings, to unify all things by referring them to a first cause, and to leave this latter relation with no term of feeling before it, is to violate the fundamental habits of our thinking, to baffle the imagination, and to exasperate the minds of certain people much as everyone's eye is exasperated by a magic-lantern picture or a microscopic object out of focus. Sharpen it, we say, or for heaven's sake remove it altogether.

[1] "On Mystery, etc." *Fortnightly Review*, Vol. IV. N.S., page 394.

The matter is not at all helped when the word Substance is brought forward and the primordial causality said to obtain between this and the phenomena; for Substance *in se* cannot be directly imaged by feeling, and seems in fact but to be a peculiar form of relation between feelings—the relation of organic union between a group of them and time. Such relations, represented as non-phenomenal entities, become thus the *bête noire* and pet aversion of many thinkers. By being posited as existent they challenge our acquaintance but at the same instant defy it by being defined as noumenal. So far is this reaction against the treatment of relational terms as metempirical entities carried, that the reigning British school seems to deny their function even in their legitimate sphere, namely as phenomenal elements or "laws" cementing the mosaic of our feelings into coherent form. Time, likeness, and unlikeness are the only phenomenal relations our English empiricists can tolerate. One of the earliest and perhaps the most famous expression of the dislike to relations considered abstractedly is the well-known passage from Hume: "When we run over libraries, persuaded of these principles, what havoc must we make! If we take in our hand any volume of divinity or school metaphysic, for instance, let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion."[1]

Many are the variations which succeeding writers have played on this tune. As we spoke of the excesses of the unifying passion, so we may now say of the craving for clear representability that it leads often to an unwillingness to treat any abstractions whatever as if they were intelligible. Even to talk of space, time, feeling, power, &c., oppresses them with a strange sense of uncanniness. Anything to be real for them must be representable in the form of a *lump*. Its other concrete determinations may be abstracted from, but its *tangible* thinghood must remain. Minds of this order, if they can be brought to psychologise at all, abound in such phrases as "tracts" of consciousness, "areas" of emotion, "molecules" of feeling, "agglutinated portions" of thought, "gangs" of ideas &c., &c.

Those who wish an amusing example of this style of thought should read *Le Cerveau* by the anatomist Luys, surely the very worst book ever written on the much-abused subject of mental physiology. In another work, *Psychologie réaliste*, by P. Sièrebois (Paris 1876), it is maintained that "our ideas exist in us in a

[1] *Essays*, ed. Green and Grose, II., p. 135.

molecular condition, and are subject to continual movements. . . . Their mobility is as great as that of the molecules of air or any gas." When we fail to recall a word it is because our ideas are hid in some distant corner of the brain whence they cannot come to the muscles of articulation, or else "they have lost their ordinary fluidity". . . . "These ideal molecules are material portions of the brain which differs from all other matter precisely in this property which it possesses of subdividing itself into very attenuated portions which easily take on the likeness in form and quality of all external objects." In other words, when I utter the word 'rhinoceros' an actual little microscopic rhinoceros gallops towards my mouth.

A work of considerable acuteness, far above the vulgar materialistic level, is that of Czolbe, *Grundzüge einer extensionalen Erkenntnisstheorie* (1875). This author explains our ideas to be extended substances endowed with mutual penetrability. The matter of which they are composed is "elastic like india-rubber". When "concentrated" by "magnetic self-attraction" into the middle of the brain, its "intensity" is such that it becomes conscious. When the attraction ceases, the idea-substance expands and diffuses itself into infinite space and so sinks from consciousness.

Again passing over these *quasi*-pathological excesses, we come to a permanent and, for our purpose, most important fact—the fact that many minds of the highest analytic power will tolerate in Philosophy no unifying terms but elements immanent in phenomena, and taken in their phenomenal and representable sense. Entities whose attributes are not directly given in feeling, phenomenal relations functioning as entities, are alike rejected. Spinozistic Substance, Spencerian Unknowable, are abhorred as unrepresentable things, numerically additional to the representable world. The substance of things for these clear minds can be no more than their common measure. The phenomena bear to it the same relation that the different numbers bear to unity. These contain no other matter than the repeated unit, but they may be classed as prime numbers, odd numbers, even numbers, square numbers, cube numbers, &c., just as truly and naturally as we class concrete things. The molecular motions, of which physicists hope that some day all events and properties will be seen to consist, form such an immanent unity of colossal simplifying power. The "infinitesimal event" of various modern writers, Taine for example, with its two "aspects," inner and outer, reaches still farther in the same direction. Writers of this class, if they deal with Psychology, repudiate the "soul" as a scholastic entity. The phenomenal unity of consciousness must flow from some

element immutably present in each and every representation of the individual and binding the whole into one. To unearth and accurately define this phenomenal self becomes one of the fundamental tasks of Psychology.

But the greatest living insister on the principle that unity in our account of things shall not overwhelm clearness, is Charles Renouvier. His masterly exposition of the irreducible categories of thought in his *Essais de Critique générale* ought to be far better known among us than it is. The onslaughts which this eminently clear-headed writer has made and still makes in his weekly journal, the *Critique Philosophique*, on the vanity of the evolutionary principle of simplification, which supposes that you have explained away all distinctions by simply saying "they arise" instead of "they are," form the ablest criticism which the school of Evolution has received. Difference "thus displaced, transported from the *esse* to the *fieri*, is it any the less postulated? And does the *fieri* itself receive the least commencement of explanation when we suppose that everything which occurs, occurs little by little, by insensible degrees, so that, if we look at any one of these degrees, what happens does so as easily and clearly as if it did not happen at all? . . . If we want a continuous production *ex nihilo*, why not say so frankly, and abandon the idea of a 'transition without break' which explains really nothing?"[1]

IV.

Our first conclusion may then be this: No system of philosophy can hope to be universally accepted among men which grossly violates either of the two great æsthetic needs of our logical nature, the need of unity and the need of clearness, or entirely subordinates the one to the other. Doctrines of mere disintegration like that of Hume and his successors, will be as widely unacceptable on the one hand as doctrines of merely engulphing substantialism like those of Schopenhauer, Hartmann and Spencer on the other. Can we for our own guidance briefly sketch out here some of the conditions of most favourable compromise?

In surveying the connexions between data we are immediately struck by the fact that some are more intimate than others. Propositions which express those we call necessary truths; and with them we contrast the laxer collocations and sequences which are known as empirical, habitual or merely fortuitous. The former seem to have an *inward* reasonableness which the latter are deprived of. The link, whatever it be,

[1] *Critique Philosophique*, 12 Juillet, 1877, p. 383.

which binds the two phenomena together, seems to extend from the heart of one into the heart of the next, and to be an essential reason why the facts should always and indefeasibly be as we now know them. "Within the pale we stand." As Lotze says[1]:— "The intellect is not satisfied with merely associated representations. In its constant critical activity thought seeks to refer each representation to the rational ground which conditions the alliance of what is associated and proves that what is grouped *belongs* together. So it separates from each other those impressions which merely coalesce without inward connexions, and it renews (while corroborating them) the bonds of those which, by the inward kinship of their content, have a right to permanent companionship."

On the other hand many writers seem to deny the existence of any such inward kinship or rational bond between things. Hume says: "All our distinct perceptions are distinct existences and the mind never perceives any real connexion among distinct existences".[2]

Hume's followers are less bold in their utterances than their master, but throughout all recent British Nominalism we find the tendency to enthrone mere juxtaposition as lord of all and to make of the Universe what has well been styled a Nulliverse. "For my part," says Prof. Huxley, "I utterly repudiate and anathematise the intruder [Necessity]. Fact I know; and Law I know; but what is this Necessity, save an empty shadow of the mind's own throwing?"

And similarly J. S. Mill writes: "What is called explaining one law by another is but substituting one mystery for another, and does nothing to render the course of nature less mysterious. We can no more assign a *why* for the more extensive laws than for the partial ones. The explanation may substitute a mystery which has become familiar and has grown to seem not mysterious for one which is still strange. And this is the meaning of explanation in common parlance. . . . The laws thus explained or resolved are said to be *accounted for;* but the expression is incorrect if taken to mean anything more than what has been stated."[3]

And yet the very pertinacity with which such writers remind us that our explanations are in a strict sense of the word no explanations at all; that our causes never unfold the essential nature of their effects; that we never seize the inward reason why attributes cluster as they do to form things, seems to prove that they possess in their minds some ideal or pattern of what a

[1] *Microcosmus*, 2nd ed. I., p. 261.
[2] *Treatise on Human Nature*, ed. T. H. Green, I., p. 559.
[3] *Logic*, 8th Edition, I., p. 549.

genuine explanation would be like in case they should meet it. How could they brand our current explanations as spurious, if they had no positive notion whatever of the real thing?

Now have we the real thing? And yet may they be partly right in their denials? Surely both; and I think that the shares of truth may be easily assigned. Our "laws" *are* to a great extent but facts of larger growth, and yet things *are* inwardly and necessarily connected notwithstanding. The entire process of philosophic simplification of the chaos of sense consists of two acts, Identification and Association. Both are principles of union and therefore of theoretic rationality; but the rationality between things associated is outward and custom-bred. Only when things are identified do we pass inwardly and necessarily from one to the other.

The first step towards unifying the chaos is to classify its items. "Every concrete thing," says Prof. Bain, "falls into as many classes as it has attributes."[1] When we pick out a certain attribute to conceive it by, we literally and strictly identify it *in that respect* with the other concretes of the class having that attribute for its essence, concretes which the attribute recalls. When we conceive of sugar as a white thing it is *pro tanto* identical with snow; as a sweet thing it is the same as liquorice; *quâ* hydro-carbon, as starch. The attribute picked out may be *per se* most uninteresting and familiar, but if things superficially very diverse can be found to possess it buried within them and so be assimilated with each other, "the mind feels a peculiar and genuine satisfaction. . . . The intellect, oppressed with the variety and multiplicity of facts, is joyfully relieved by the simplification and the unity of a great principle."[2]

Who does not feel the charm of thinking that the moon and the apple are, as far as their relation to the earth goes, identical? of knowing respiration and combustion to be one? of understanding that the balloon rises by the same law whereby the stone sinks? of feeling that the warmth in one's palm when one rubs one's sleeve is identical with the motion which the friction checks? of recognising the difference between beast and fish to be only a higher degree of that between human father and son? of believing our strength when we climb or chop to be no other than the strength of the sun's rays which made the oats grow out of which we got our morning meal?

We shall presently see how the attribute performing this unifying function, becomes associated with some other attribute to form what is called a general law. But at present we must

[1] *Ment. and Mor. Science*, p. 107. [2] Bain, *Logic*, II., p. 120.

note that many sciences remain in this first and simplest classificatory stage. A classificatory science is merely one the fundamental concepts of which have few associations or none with other concepts. When I say a man, a lizard, and a frog are one in being vertebrates, the identification, delightful as it is in itself, leads me hardly any farther. "The idea that all the parts of a flower are modified leaves, reveals a connecting law, which surprises us into acquiescence. But now try and define the leaf, determine its essential characteristics, so as to include all the forms that we have named. You will find yourself in a difficulty, for all distinctive marks vanish, and you have nothing left, except that a leaf in this wider sense of the term is a lateral appendage of the axis of a plant. Try then to express the proposition 'the parts of a flower are modified leaves' in the language of scientific definition, and it reads, 'the parts of the flower are lateral appendages of the axis'." [1] Truly a bald result! Yet a dozen years ago there hardly lived a naturalist who was not thrilled with rapture at identifications in "philosophic" anatomy and botany exactly on a par with this. Nothing could more clearly show that the gratification of the sentiment of rationality depends hardly at all on the worth of the attribute which strings things together but almost exclusively on the mere fact of their being strung at all. Theological implications were the utmost which the attributes of archetypal zoology carried with them, but the wretched poverty of these proves how little they had to do with the enthusiasm engendered by archetypal identifications. Take Agassiz's conception of class-characters, order-characters &c., as "thoughts of God". What meagre thoughts! Take Owen's archetype of the vertebrate skeleton as revealing the artistic temperament of the Creator. It is a grotesque figure with neither beauty nor ethical suggestiveness, fitted rather to discredit than honour the Divine Mind. In short the conceptions led no farther than the identification pure and simple. The transformation which Darwin has effected in the classificatory sciences is simply this—that in his theory the class-essence is not a unifying attribute pure and simple, but an attribute with wide associations. When a frog, a man and a lizard are recognised as one, not simply in having the same back-bone, &c., but in being all offspring of one parent, our thought instead of coming to a standstill, is immediately confronted with further problems and, we hope, solutions. Who were that parent's ancestors and cousins? Why was he chosen out of all to found such an enormous line? Why did he himself perish in the struggle to survive? &c.

[1] Helmholtz, *Popular Scientific Lectures*, p. 47.

Association of class-attributes *inter se*, is thus the next great step in the mind's simplifying industry. By it Empirical Laws are founded and sciences, from classificatory, become explanatory. Without it we should be in the position of a judge who could only decide that the cases in his court belonged each to a certain class, but who should be inhibited from passing sentence, or attaching to the class-name any further notion of duty, liability, or penalty. This *coupling* of the class-concept with certain determinate *consequences* associated therewithal, is what is practically important in the laws of nature as in those of society.

When, for example, we have identified prisms, bowls of water, lenses and strata of air as distorting media, the next step is to learn that all distorting media refract light rays towards the perpendicular. Such additional determination makes a law. But this law itself may be as inscrutable as the concrete fact we started from. The entrance of a ray and its swerving towards the perpendicular, may be simply *associated* properties, with, for aught we see, no inwardly necessary bond, coupled together as empirically as the colour of a man's eyes with the shape of his nose.

But such an empirical law may have its terms again classified. The essence of the medium may be to retard the light-wave's speed. The essence (in an obliquely-striking wave) of deflexion towards the perpendicular may be earlier retardation of that part of the wave-front which enters first, so that the remaining portion swings round it before getting in. Medium and bending towards perpendicular thus coalesce into the one identical fact of retardation. This being granted gives an inward explanation of all above it. But retardation itself remains an empirical coupling of medium and light-movement until we have classified both under a single concept. The explanation reached by the insight that two phenomena are at bottom one and the same phenomenon, is rational in the ideal and ultimate sense of the word. The ultimate identification of the subject and predicate of a mathematical theorem, an identification which we can always reach in our reasonings, is the source of the inward necessity of mathematical demonstration. We see that the top and bottom of a parallelogram must be equal as soon as we have unearthed in the parallelogram the attribute that it consists of two equal, juxtaposed triangles of which its top and bottom form homologous sides—that is, as soon as we have seen that top and bottom have an identical essence, their length, as being such sides, and that their position is an accident. This criterion of identity is that which we all unconsciously use when we discriminate between brute fact and explained fact. There is no other test.

In the contemporary striving of physicists to interpret every event as a case of motion concealed or visible, we have an adumbration of the way in which a common essence may make the sensible heterogeneity of things inwardly rational. The cause is one motion, the effect the same motion transferred to other molecules; in other words, physics aims at the same kind of rationality as mathematics. In the second volume of Lewes's *Problems* we find this anti-Humean view that the effect is the "procession" of the cause, or that they are one thing in two aspects brought prominently forward.[1]

And why, on the other hand, do all our contemporary physical philosophers so vie with each other in the zeal with which they reiterate that in reality nerve-processes and brain-tremors "explain" nothing of our feelings? Why does "the chasm between the two classes of phenomena still remain intellectually impassable"?[2] Simply because, in the words of Spencer which we quoted a few pages back, feeling and motion have nothing whatever in common, no identical essence by which we can conceive both, and so, as Tyndall says, "pass by a process of reasoning from one to the other". The "double-aspect" school postulate the blank form of "One and the Same Fact," appeal to the image of the circle which is both convex and concave, and think that they have by this symbolic identification made the matter seem more rational.

Thus then the connexions of things become strictly rational only when, by successive substitutions of essences for things, and higher for lower essences, we succeed in reaching a point of view from which we can view the things as one. A and B are concretes; *a* and *b* are partial attributes with which for the present case we conceive them to be respectively identical (classify them) and which are coupled by a general law. M is a further attribute which rationally explains the general law as soon as we perceive it to form the essence of both *a* and *b*, as soon as we identify them with each other through it. The softening of asphalt pavements in August is explained first by the empirical law that heat, which is the essence of August, produces melting, which is the essence of the pavement's change, and secondly this law is inwardly rationalised by the conception of both heat and melting being at bottom one and the same fact, namely, increased molecular mobility.

[1] This view is in growing favour with thinkers fed from empirical sources. See Wundt's *Physikalische Axiome* and the important article by A. Riehl, "Causalitat und Identität," in *Vierteljahrssch. f. wiss. Philos.* Bd. I., p. 265. The Humean view is ably urged by Chauncey Wright, *Philosophical Discussions*, N.Y. 1877, p. 406.

[2] Tyndall, *Fragments of Science*, 2nd ed., p. 121.

Proximate and ultimate explanations are then essentially the same thing. Classification involves all that is inward in any explanation, and a perfected rationalisation of things means only a *completed* classification of them. Every one feels that all explanation whatever, even by reference to the most proximate empirical law, does involve something of the essence of inward rationalisation. How else can we understand such words as these from Prof. Huxley? "The fact that it is impossible to comprehend how it is that a physical state gives rise to a mental state, no more lessens the value of our [empirical] explanation of the latter case, than the fact that it is utterly impossible to comprehend how motion is communicated from one body to another weakens the force of the explanation of the motion of one billiard-ball by showing that another has hit it."[1]

To return now to the philosophic problem. It is evident that our idea of the universe cannot assume an inwardly rational shape until each separate phenomenon is conceived as fundamentally identical with every other. But the important fact to notice is that in the steps by which this end is reached the really rationalising, pregnant moments are the successive steps of conception, the moments of picking out essences. The association of these essences into laws, the empirical coupling, is done by nature for us and is hardly worthy to be called an intellectual act. On the other hand the coalescence-into-one of all items in which the same essence is discerned, in other words the perception that an essence whether ultimate, simple and universal, or proximate and specific, is identical with itself wherever found, is a barren truism. The living question always is, Where *is* it found? To stand before a phenomenon and say *what* it is; in other words to pick out from it the embedded character (or characters) also embedded in the maximum number of *other* phenomena, and so identify it with them—here lie the stress and strain, here the test of the philosopher. So we revert to what we said far back: the genius can do no more than this; in Butler's words—

> "He knows *what's what*, and that's as high
> As metaphysic wit can fly."[2]

[1] "Modern Symposium," *XIXth Century*, Vol. I., 1877.

[2] This doctrine is perfectly congruous with the conclusion that identities are the only propositions necessary *à priori*, though of course it does not necessarily lead to that conclusion, since there may be in things elements which are not simple but bilateral or synthetic, like straightness and shortness in a line, convexity and concavity in a curve. Should the empiricists succeed in their attempt to resolve such Siamese-twin elements into habitual juxtapositions, the Principle of Identity would become the only *à priori* truth, and the philosophic problem like all our ordinary problems

V.

We have now to ask ourselves how far this identification may be legitimately carried and what, when perfected, its real worth is. But before passing to these further questions we had best secure our ground by defending our fundamental notion itself from nominalistic attacks. The reigning British school has always denied that the same attribute *is* identical with itself in different individuals. I started above with the assumption that when we look at a subject with a certain purpose, regard it from a certain point of view, some one attribute becomes its essence and identifies it, *pro hac vice*, with a class. To this James Mill replies: "But what is meant by a mode of regarding things? This is mysterious; and is as mysteriously explained, when it is said to be the taking into view the particulars in which individuals agree. For what is there, which it is possible for the mind to take into view, in that in which individuals agree? Every colour is an individual colour, every size is an individual size, every shape is an individual shape. But things have no individual colour in common, no individual shape in common; no individual size in common; that is to say, they have neither shape, colour, nor size in common. What, then, is it which they have in common, which the mind can take into view? Those who affirmed that it was something, could by no means tell. They substituted words for things; using vague and mystical

would become a question as to facts: *What* are these facts which we perceive to exist? Are there any existing facts corresponding to this or that conceived class? Lewes, in the interesting discussion on necessary and contingent truth in the Prolegomena to his *History* and in Chap. XIII. of his first *Problem*, seems at first sight to take up an opposite position, in that he maintains our commonly so-called contingent truths to be really necessary. But his treatment of the question most beautifully confirms the doctrine I have advanced in the text. If the proposition "A is B" is ever true, he says it is so necessarily. But he proves the necessity by showing that what we mean by A is its essential attribute x, and what we mean by B is again x. Only *in so far* as A and B are identical is the proposition true. But he admits that a fact sensibly just like A may lack x, and a fact sensibly unlike B may have it. In either case the proposition, to be true, must change. The contingency which he banishes from propositions, he thus houses in their terms; making as I do the act of conception, subsumption, classification, intuition, naming, or whatever else one may prefer to call it, the pivot on which thought turns. Before this act there is infinite indeterminateness—A and B may be anything. After the act there is the absolute certainty of truism—all x's are the same. *In* the act—is A, x? *is* B, x? or not?—we have the sphere of truth and error, of living experience, in short, of Fact. As Lewes himself says: "The only necessity is that a thing is what it is; the only contingency is that our proposition may not state what the thing is" (*Problems*, Vol. I., p. 395).

phrases, which, when examined, meant nothing;"[1] the truth being according to this heroic author, that the only thing that can be possessed in common is a name. Black in the coat and black in the shoe agree only in that both are named black—the fact that on this view the *name* is never the same when used twice being quite overlooked. But the blood of the giants has grown weak in these days, and the nominalistic utterances of our contemporaries are like sweet-bells jangled, sadly out of tune. If they begin with a clear nominalistic note, they are sure to end with a grating rattle which sounds very like *universalia in re*, if not *ante rem*. In M. Taine,[2] who may fairly be included in the British School, they are almost *ante rem*. This *bruit de cloche félée*, as the doctors say, is pathognomonic of the condition of Ockham's entire modern progeny.

But still we may find expressions like this: "When I say that the sight of any object gives me the *same* sensation or emotion to-day that it did yesterday, or the *same* which it gives to some other person, this is evidently an incorrect application of the word *same;* for the feeling which I had yesterday is gone never to return. . . . Great confusion of ideas is often produced, and many fallacies engendered, in otherwise enlightened understandings, by not being sufficiently alive to the fact (in itself always to be avoided), that they use the same name to express ideas so different as those of identity and undistinguishable resemblance."[3]

What are the exact facts? Take the sensation I got from a cloud yesterday and from the snow to-day. The white of the snow and that of the cloud differ in place, time and associates; they agree in quality, and we may say in origin, being in all probability both produced by the activity of the same brain tract. Nevertheless, John Mill denies our right to call the quality the same. He says that *it* essentially differs in every different occasion of its appearance, and that no two phenomena of which it forms part are really identical even as far as *it* goes. Is it not obvious that to maintain this view he must abandon

[1] *Analysis*, Vol. I., p. 249.

[2] How can M. Taine fail to have perceived that the entire doctrine of "Substitution" so clearly set forth in the nominalistic beginning of his brilliant book is utterly senseless except on the supposition of realistic principles like those which he so admirably expounds at its close? How *can* the image be a useful substitute for the sensation, the tendency for the image, the name for the tendency, unless sensation, image, tendency and name be *identical* in some respect, in respect namely of function, of the relations they enter into? Were this realistic basis laid at the outset of Taine's *De l'Intelligence*, it would be one of the most consistent instead of one of the most self-contradictory works of our day.

[3] J. S. Mill, *Logic*, 8th Ed., I., p. 77.

the phenomenal plane altogether? Phenomenally considered, the white *per se is* identical with itself wherever found in snow or in cloud, to-day or to-morrow. If any nominalist deny the identity I ask him to point out the difference. *Ex hypothesi* the qualities are sensibly indistinguishable, and the only difference he can indicate is that of time and place; but these are not differences in the quality. If our quality be not the same with itself, what meaning has the word "same"? Our adversary though silenced may still grudge assent, but if he analyse carefully the grounds of this reluctance he will, I think, find that it proceeds from a difficulty in believing that the *cause* of the quality can be just the same at different times. In other words he abandons altogether the platform of the sensible phenomenon and ascends into the empyrean, postulating some inner noumenal principle of *quality* + *time* + *place* + *concomitants*. The entire group being never twice alike, of course this ground, or being *in se*, of the quality must each time be distinct and, so to speak, personal. This transcendental view is frankly avowed by Mr. Spencer in his *Psychology*, II., p. 63—(the passage is too complex to quote); but all nominalists must start from it, if they think clearly at all.[1]

We, who are phenomenists, may leave all metaphysical entities which have the power of producing whiteness to their fate, and content ourselves with the irreversible *datum* of perception that the whiteness after it *is* manifested is the same, be it here or be it there. Of all abstractions such entities are the emptiest, being ontological hypostatisations of the mere susceptibility of being distinguished, whilst this susceptibility has its real, nameable, phenomenal ground all the while, in the time, place, and relations affected by the attribute considered.

The truly wise man will take the phenomenon in its entirety and permanently sacrifice no one aspect to another. Time, place, and relations differ, he will freely say; but just as freely admit that the quality is identical with itself through all these differences. Then if, *to satisfy the philosophic interest*, it becomes needful to conceive this identical part as the essence of the several entire phenomena, he will gladly call them one; whilst if some other interest be paramount, the points of difference will

[1] I fear that even after this some persons will remain unconvinced, but then it seems to me the matter has become a dispute about words. If my supposed adversary, when he says that different times and places prevent a quality which appears in them from ever being twice the same, will admit that they do not make it in any conceivable way *different*, I will willingly abandon the words "same" and "identical" to his fury; though I confess it becomes rather inconvenient to have no single positive word left by which to indicate complete absence of difference.

become essential and the identity an accident. Realism is eternal and invincible in this phenomenal sense.

We have thus vindicated against all assailants our title to consider the world as a matter susceptible of rational formulation in the deepest, most inward sense, and not as a disintegrated sand-heap; and we are consequently at liberty to ask: (1) Whether the mutual identification of its items meet with any necessary limit; and (2) What, supposing the operation completed, its real worth and import amount to.

VI.

In the first place, when we have rationally explained the connexion of the items A and B by identifying both with their common attribute x, it is obvious that we have really explained only so much of these items as *is* x. To explain the connexion of choke-damp and suffocation by the lack of oxygen is to leave untouched all the other peculiarities both of choke-damp and of suffocation, such as convulsions and agony on the one hand, density and explosibility on the other. In a word, so far as A and B contain l, m, n and o, p, q, respectively in addition to x, they are not explained by x. Each additional particularity makes its distinct appeal to our rational craving. A single explanation of a fact only explains it from a single point of view.[1] The entire fact is not accounted for until each and all of its characters have been identified with their likes elsewhere. To apply this now to universal formulas we see that the explanation of the world by molecular movements explains it only so far as it actually *is* such movements. To invoke the "Unknowable" explains only so much as is unknowable; "Love" only so much as is love; "Thought," so much as is thought; "Strife" so much as is strife. All data whose actual phenomenal quality cannot be identified with the attribute invoked as Universal Principle, remain outside as ultimate, independent *kinds* or *natures*, associated by empirical laws with the fundamental attribute but devoid of truly rational kinship with it. If A and B are to be *thoroughly* rationalised together, l, m, n and o, p, q, must each and all turn out to be so many cases of x in

[1] In the number of the *Journal of Speculative Philosophy* for April 1879, Prof. John Watson most admirably asserts and expresses the truth which constitutes the back-bone of this article, namely that every manner of conceiving a fact is relative to some interest, and that there are no absolutely essential attributes—every attribute having the right to call itself essential in turn, and the truth consisting of nothing less than all of them together. I avow myself unable to comprehend as yet this author's Hegelian point of view, but his pages 164 to 172 are a most welcome corroboration of what I have striven to advance in the text.

disguise. This kind of wholesale identification is being now attempted by physicists when they conceive of all the ancient, separate Forces as so many determinations of one and the same essence, molecular mass, position and velocity.

Suppose for a moment that this idea were carried out for the physical world,—the subjective sensations produced by the different molecular energies, colour, sound, taste, &c., &c., the relations of likeness and contrast, of time and position, of ease and effort, the emotions of pain and delight, in short, all the mutually irreducible categories of mental life, would still remain over. Certain writers strive in turn to reduce all these to a common measure, the primordial unit of feeling, or infinitesimal mental event which builds them up as bricks build houses. But this case is wholly different from the last. The physical molecule is conceived not only as having a being *in se* apart from representation, but as being essentially of representable kind. With magnified perceptions we should actually see it. The mental molecule, on the other hand, has by its very definition no existence except in being felt, and yet by the same definition never is felt. It is neither a fact in consciousness nor a fact out of consciousness, and falls to the ground as a transcendental absurdity. Nothing could be more inconclusive than the empirical arguments for the existence of this noumenal feeling which Taine and Spencer draw from the sense of hearing.

But let us for an instant waive all this and suppose our feelings reduced to one. We should then have two primordial natures, the molecule of matter and the molecule of mind, coupled by an empirical law. Phenomenally incommensurable, the attempt to reduce them to unity by calling them two "aspects" is vain so long as it is not pointed out who is there *adspicere;* and the *Machtspruch* that they are expressions of one underlying Reality has no rationalising function so long as that reality is confessed unknowable. Nevertheless the absolute necessity of an identical material substratum for the different species of feeling on the one hand, and the genera feeling and motion on the other, if we are to have any evolutionary *explanation* of things, will lead to ever renewed attempts at an atomistic hylozoism. Already Clifford and Taine, Spencer, Fechner, Zöllner, G. S. Hall, and more besides, have given given themselves up to this ideal.

But again let us waive this criticism and admit that even the chasm between feeling and motion may be rationally bridged by the conception of the bilateral atom of being. Let us grant that this atom by successive compoundings with its fellows builds up the universe; is it not still clear that each item in the

universe would still be explained only as to its general *quality* and not as to its other particular determinations? The particulars depend on the exact number of primordial atoms existing at the outset and their exact distances from each other. The "universal formula" of Laplace which Du Bois-Reymond has made such striking use of in his lecture *Ueber die Grenzen des Naturerkennens*, cannot possibly get along with fewer than this almost infinite number of data. Their homogeneity does not abate their infinity—each is a separate empirical fact.

And when we now retract our provisional admissions, and deny that feelings incommensurable *inter se* and with motion can be possibly unified, we see at once that the reduction of the phenomenal Chaos to rational form must stop at a certain point. It is a limited process,—bounded by the number of elementary attributes which cannot be mutually identified, the specific *qualia* of representation, on the one hand, and, on the other, by the number of entities (atoms or monads or what not) with their complete mathematical determinations, requisite for deducing the fulness of the concrete world. All these irreducible data form a system, no longer phenomenally rational, *inter se*, but bound together by what is for us an empirical law. We merely find the system existing as a matter of fact, and write it down. In short, a plurality of categories and an infinity of primordial entities, determined according to these categories, is the minimum of philosophic baggage, the only possible compromise between the need of clearness and the need of unity. All simplification, beyond this point, is reached either by throwing away the particular concrete determinations of the fact to be explained, or else it is illusory simplification. In the latter case it is made by invoking some sham term, some pseudo-principle, and conglomerating it and the data into one. The principle may be an immanent element but no true universal: Sensation, Thought, Will are principles of this kind; or it may be a transcendent entity like Matter, Spirit, Substance, the Unknowable, the Unconscious, &c.[1] Such attempts do but postulate unification, not effect it; and if taken avowedly to represent a mere claim, may be allowed to stand. But if offered as actual explanations, though they may serve as a sop to the rabble, they can but nauseate those whose philosophic appetite is genuine and entire. If we choose the former mode of simplification and are willing to abstract from the particulars of time, place and combination in the concrete world,

[1] The idea of "God" in its popular function is open to neither of these objections, being conceived as a phenomenon standing in causal relation to other phenomena. As such, however, it has no unifying function of a properly *explanatory* kind.

we may simplify our elements very much by neglecting the numbers and collocations of our primordial elements and attending to their qualitative categories alone. The system formed by these will then really rationalise the universe so far as its qualities go. Nothing can happen in it incommensurable with these data, and practically this abstract treatment of the world as quality is all that philosophers aim at. They are satisfied when they can see it to be a place in which none but these qualities appear, and in which the same quality appears not only once but identically repeats itself. They are willing to ignore, or leave to special sciences the knowledge of what times, places and concomitants the recurring quality is likely to affect. The *Essais de Critique générale* of Renouvier form, to my mind, by far the ablest answer to the philosophic need thus understood, clearness and unity being there carried each to the farthest point compatible with the other's existence.

VII.

And now comes the question as to the worth of such an achievement. How much better off is the philosopher when he has got his system than he was before it? As a mere phenomenal system it stands between two fires. On the one hand the unbridled craver of unity scorns it, as being incompletely rational, still to a great extent an empirical sand-heap; whilst on the other the practical man despises its empty and abstract barrenness. All it says is that the elements of the world are such and such and that each is identical with itself wherever found; but the question: Where is it found? (which is for the practical man the all-important question about each element) he is left to answer by his own wit. Which, of all the essences, shall here and now be held the essence of this concrete thing, the fundamental philosophy never attempts to decide. We seem thus led to the conclusion that a system of categories is, on the one hand, the only possible philosophy, but is, on the other, a most miserable and inadequate substitute for the fulness of the truth. It is a monstrous abridgment of things which like all abridgments is got by the absolute loss and casting out of real matter. This is why so few human beings truly care for Philosophy. The particular determinations which she ignores are the real matter exciting other æsthetic and practical needs, quite as potent and authoritative as hers. What does the moral enthusiast care for philosophical ethics? Why does the *Æsthetik* of every German philosopher appear to the artist like the abomination of desolation? What these men need is a particular counsel, and no barren, universal truism.

"Grau, theurer Freund, ist alle Theorie
Und grün des Lebens goldner Baum."

The entire man, who feels all needs by turns, will take nothing as an equivalent for Life but the fulness of living itself. Since the essences of things are as a matter of fact spread out and disseminated through the whole extent of time and space, it is in their spread-outness and alternation that he will enjoy them. When weary of the concrete clash and dust and pettiness, he will refresh himself by an occasional bath in the eternal spring, or fortify himself by a daily look at the immutable Natures. But he will only be a visitor, not a dweller in the region; he will never carry the philosophic yoke upon his shoulders, and when tired of the gray monotony of her problems and insipid spaciousness of her results, will always escape gleefully into the teeming and dramatic richness of the concrete world.

So our study turns back here to its beginning. We started by calling every concept a teleological instrument (*supra* p. 319). No concept can be a valid substitute for a concrete reality except with reference to a particular interest in the conceiver. The interest of theoretic rationality, the relief of identification, is but one of a thousand human purposes. When others rear their heads it must pack up its little bundle and retire till its turn recurs. The exaggerated dignity and value that philosophers have claimed for their solutions is thus greatly reduced. The only virtue their theoretic conception need have is simplicity, and a simple conception is an equivalent for the world only so far as the world is simple; the world meanwhile, whatever simplicity it may harbour, being also a mightily complex affair. Enough simplicity remains, however, and enough urgency in our craving to reach it, to make the theoretic function one of the most invincible and authoritative of human impulses. All ages have their intellectual populace. That of our own day prides itself particularly on its love of Science and Facts and its contempt for all metaphysics. Just weaned from the Sunday-school nurture of its early years, with the taste of the catechism still in its mouth, it is perhaps not surprising that its palate should lack discrimination and fail to recognise how much of ontology is contained in the "Nature," "Force" and "Necessary Law," how much mysticism in the "Awe," "Progress" and "Loyalty to Truth" or whatever the other phrases may be with which it sweetens its rather meagre fare of fragmentary physiology and physics. But its own inconsistency should teach it that the eradication of music, painting and poetry, games of chance and skill, manly sports and all other æsthetic energies from human life, would be an easy task compared with that

suppression of Metaphysics which it aspires to accomplish. Metaphysics of some sort there must be. The only alternative is between the good Metaphysics of clear-headed Philosophy and the trashy Metaphysics of vulgar Positivism. Metaphysics, the quest of the last clear elements of things, is but another name for thought which seeks thorough self-consistency; and so long as men must think at all, some will be found willing to forsake all else to follow that ideal.

VIII.

Suppose then the goal attained. Suppose we have at last a Metaphysics in which clearness and unity join friendly hands. Whether it be over a system of interlocked elements, or over a substance, or over such a simple fact as "phenomenon" or "representation," need not trouble us now. For the discussion which follows we will call the result the metaphysical Datum and leave its composite or simple nature uncertain. Whichever it be, and however limited as we have seen be the sphere of its utility, it satisfies, if no other need, at least the need of rationality. But now I ask: Can that which is the ground of rationality in all else be itself properly called rational? It would seem at first sight that in the sense of the word we have hitherto alone considered, it might. One is tempted at any rate to say that, since the craving for rationality in a theoretic or logical sense consists in the identification of one thing with all other outstanding things, a unique datum which left nothing else outstanding would leave no play for further rational demand, and might thus be said to quench that demand or to be rational *in se*. No *otherness* being left to annoy the mind we should sit down at peace.

In other words, just as the theoretic tranquillity of the boor results from his spinning no further considerations about his chaotic universe which may prevent him from going about his practical affairs; so any brute datum whatever (provided it were simple and clear) ought to banish mystery from the Universe of the philosopher and confer perfect theoretic peace, inasmuch as there would then be for him absolutely no further considerations to spin.

This in fact is what some persons think. Prof. Bain says: "A difficulty is solved, a mystery unriddled, when it can be shown to resemble something else; to be an example of a fact already known. Mystery is isolation, exception, or it may be apparent contradiction: the resolution of the mystery is found in assimilation, identity, fraternity. When all things are assimilated, so far as assimilation can go, so far as likeness holds, there is an end to explanation; there is an end to what the

mind can do, or can intelligently desire. . . . The path of science as exhibited in modern ages, is towards generality, wider and wider, until we reach the highest, the widest laws of every department of things; there explanation is finished, mystery ends, perfect vision is gained."

But unfortunately this first answer will not hold. Whether for good or evil, it is an empirical fact that the mind is so wedded to the process of seeing an *other* beside every item of its experience, that when the notion of an absolute datum which is all is presented to it, it goes through its usual procedure and remains *pointing* at the void beyond, as if in that lay further matter for contemplation. In short, it spins for itself the further positive consideration of a Nonentity enveloping the Being of its datum; and as that leads to no issue on the further side, back recoils the thought in a circle towards its datum again. But there is no logical identity, no natural bridge between nonentity and this particular datum, and the thought stands oscillating to and fro, wondering "Why was there anything but nonentity? Why just this universal datum and not another? Why anything at all?" and finds no end, in wandering mazes lost. Indeed, Prof. Bain's words are so untrue that in reflecting men it is just when the attempt to fuse the manifold into a single totality has been most successful, when the conception of the universe as a *fait unique* (in D'Alembert's words) is nearest its perfection, that the craving for further explanation, the ontological *θαυμάζειν* arises in its extremest pungency.

As Schopenhauer says, "The uneasiness which keeps the never-resting clock of metaphysics in motion, is the consciousness that the non-existence of this world is just as possible as its existence".[1]

The notion of Nonentity may thus be called the parent of the philosophic craving in its subtlest and profoundest sense. Absolute existence is absolute mystery. Although *selbstständig*, it is not *selbstverständlich;* for its relations with the Nothing remain unmediated to our understanding. One philosopher only, so far as I know, has pretended to throw a logical bridge over this chasm. Hegel, by trying to shew that Nonentity and Being as actually determined are linked together by a series of successive identities, binds the whole of possible thought into an adamantine unity with no conceivable outlying notion to disturb the free rotary circulation of the mind within its bounds. Since such unchecked motion constitutes the feeling of rationality, he must be held, if he has succeeded, to have eternally and absolutely quenched all its logical demands.

[1] *Welt als Wille &c.*, 3 Auflage, I., p. 189.

But for those who, like most of us, deem Hegel's heroic effort to have failed, nought remains but to confess that when all has been unified to its supreme degree, (Prof. Bain to the contrary notwithstanding), the notions of a Nonentity, or of a possible Other than the actual, may still haunt our imagination and prey upon the ultimate data of our system. The bottom of Being is left logically opaque to us, a *datum* in the strict sense of the word, something which we simply come upon and find, and about which, (if we wish to act,) we should pause and wonder as little as possible. In this confession lies the lasting truth of Empiricism, and in it Empiricism and imaginative Faith join hands. The logical attitude of both is identical, they both say there is a *plus ultra* beyond all we know, a womb of unimagined other possibility. They only differ in their sentimental temper: Empiricism says, "Into the *plus ultra* you have no right to carry your anthropomorphic affirmations"; Faith says, "You have no right to extend to it your denials". The mere ontologic emotion of wonder, of mystery, has in some minds such a tinge of the rapture of sublimity, that for this æsthetic reason alone, it will be difficult for any philosophic system completely to exorcise it.

In truth, the philosopher's logical tranquillity is after all in essence no other than the boor's. Their difference regards only the point at which each refuses to let further considerations upset the absoluteness of the data he assumes. The boor does so immediately, and is therefore liable at any moment to the ravages of many kinds of confusion and doubt. The philosopher does not do so till unity has been reached, and is therefore warranted against the inroads of *those* considerations—but only practically not essentially secure from the blighting breath of the *ultimate* "Why?" Positivism takes a middle ground, and with a certain consciousness of the beyond abruptly refuses by an inhibitory action of the will to think any further, stamps the ground and says "Physics, I espouse thee! for better or worse, be thou my absolute!"

The Absolute is what has not yet been transcended, criticised or made relative. So far from being something quintessential and unattainable as is so often pretended, it is practically the most familiar thing in life. Every thought is absolute to us at the moment of conceiving it or acting upon it. It only becomes relative in the light of further reflection. This may make it flicker and grow pale—the notion of nonentity may blow in from the infinite and extinguish the theoretic rationality of a universal datum. As regards this latter, absoluteness and rationality are in fact convertible terms. And the chief effort of the rationalising philosopher must be to gain an absoluteness for his datum which shall be *stable* in the maximum degree, or as far as possible

removed from exposure to those further considerations by which we saw that the vulgar *Weltanschauung* may so promptly be upset. I shall henceforward call the further considerations which may supervene and make relative or derationalise a mass of thought, the *reductive* of that thought. The reductive of absolute being is thus nonentity, or the notion of an *aliter possibile* which it involves. The reductive of an absolute physics is the thought that all material facts are representations in a mind. The reductive of absolute time, space, causality, atoms, &c., are the so-called antinomies which arise as soon as we think fully out the thoughts we have begun. The reductive of absolute knowledge is the constant potentiality of doubt, the notion that the next thought may always correct the present one —resulting in the notion that a noumenal world is there mocking the one we think we know. Whatever we think, some reductive seems in strict theoretic legitimacy always imminently hovering over our thought ready to blight it. Doubleness dismissed at the front door re-enters in the rear and spoils the rationality of the simple datum we flattered ourselves we had attained. Theoretically the task of the philosopher, if he cannot reconcile the datum with the reductive by the way of identification *à la* Hegel, is to exorcise the reductive so that the datum may hold up its head again and know no fear. Prof. Bain would no doubt say that nonentity was a pseud-idea not derived from experience and therefore meaningless, and so exorcise that reductive.[1] The antinomies may be exorcised by the distinction between potentiality and actuality.[2] The ordinary half educated materialist comforts himself against idealists by the notion that, after all, thought is such an obscure mystical form of existence that it is almost as bad as no existence at all, and need not be seriously taken into account by a sensible man.

If nothing else could be conceived than thoughts or fancies, these would be credited with the maximum of reality. Their reductive is the belief in an objective reality of which they are but copies. When this belief takes the form of the affirmation of a noumenal world contrasted with all possible thought, and therefore playing no other part than that of reductive pure and simple,—to discover the formula of exorcism becomes, and has been recognised ever since Kant to be, one of the principal tasks of philosophy rationally understood.

[1] The author of *A Candid Examination of Theism* (Trübner, 1878) exorcises Nonentity by the notion of the all-excluding infinitude of Existence, —whether reasonably or not I refrain from deciding. The last chapter of this work (published a year after the present text was written), is on "the final Mystery of Things," and impresses in striking language much that I have said.

[2] See Renouvier: *Premier Essai.*

The reductive used by nominalists to discredit the self-identity of the same attribute in different phenomena is the notion of a still higher degree of identity. We easily exorcise this reductive by challenging them to show what the higher degree of sameness can possibly contain which is not already in the lower.

The notion of Nonentity is not only a reductive; it can assume upon occasion an exorcising function. If, for example, a man's ordinary mundane consciousness feels staggered at the improbability of an immaterial thinking-principle being the source of all things, Nonentity comes in and says, "Contrasted with me, (that is, considered simply as *existent*) one principle is as probable as another". If the same mundane consciousness recoils at the notion of providence towards individuals or individual immortality as involving, the one too infinite a subdivision of the divine attention, the other a too infinite accumulation of population in the heavens, Nonentity says, "As compared with me all quantities are one: the wonder is all there when God has found it worth His while to guard or save a single soul".

But if the philosopher fails to find a satisfactory formula of exorcism for his datum, the only thing he can do is to "blink" the reductive at a certain point, assume the Given as his necessary ultimate, and proceed to a life whether of contemplation or of action based on that. There is no doubt that this half wilful act of arrest, this acting on an opaque necessity, is accompanied by a certain pleasure. See the reverence of Carlyle for brute fact: "There is an infinite significance in Fact." "Necessity," says a German philosopher,[1] and he means not rational but simply given necessity, "is the last and highest point that we can reach in a rational conception of the world. . . . It is not only the interest of ultimate and definitive knowledge, but also that of the feelings, to find a last repose and an ideal equilibrium, in an uttermost datum which can simply not be other than it is."

Such is the attitude of ordinary men in their theism, God's fiat being in physics and morals such an uttermost datum. Such also is the attitude of all hard-minded analysts and *Verstandesmenschen*. Renouvier and Hodgson, the two foremost contemporary philosophers, promptly say that of experience as a whole no account can be given, but do not seek to soften the abruptness of the confession or reconcile us with our impotence.

Such mediating attempts may be made by more mystical minds. The peace of rationality may be sought through ecstacy when logic fails. To religious persons of every shade of doctrine moments come when the world as it is seems so divinely orderly,

[1] Dühring: *Cursus der Philosophie*, Leipzig 1875, p. 35.

and the acceptance of it by the heart so rapturously complete, that intellectual questions vanish, nay the intellect itself is hushed to sleep—as Wordsworth says, "Thought is not, in enjoyment it expires". Ontological emotion so fills the soul that ontological speculation can no longer overlap it and put her girdle of interrogation-marks around existence. Even the least religious of men must have felt with our national ontologic poet, Walt Whitman, when loafing on the grass on some transparent summer morning, that "Swiftly arose and spread over him the peace and knowledge that pass all the argument of the earth". At such moments of energetic living we feel as if there were something diseased and contemptible, yea vile, in theoretic grubbing and brooding. To feel "I *am* the truth" is to abolish the opposition between knowing and being.

Since the heart can thus wall out the ultimate irrationality which the head ascertains, the erection of its procedure into a systematised method would be a philosophic achievement of first-rate importance. As used by mystics hitherto it has lacked universality, being available for few persons and at few times, and even in these being apt to be followed by fits of "reaction" and "dryness"; but it may nevertheless be the forerunner of what will ultimately prove a true method. If all men could permanently say with Jacobi, "In my heart there is light," though they should for ever fail to give an articulate account of it, existence would really be rationalised.[1]

[1] A curious recent contribution to the construction of a universal mystical method is contained in the *Anæsthetic Revelation* by Benj. P. Blood (Amsterdam, N.Y., 1874). The author, who is a writer abounding in verbal felicities, thinks we may all grasp the secret of Being if we only intoxicate ourselves often enough with laughing-gas. "There is in the instant of recall from the anæsthetic stupor a moment in which the genius of being is revealed. . . . Patients try to speak of it but invariably fail in a lost mood of introspection. . . . But most will accept this as the central point of the illumination that sanity is not the basic quality of intelligence, . . . but that only in sanity is formal or contrasting thought, while the naked life is realised outside of sanity altogether. It is the instant contrast of this tasteless water of souls with formal thought as we *come to* that leaves the patient in an astonishment that the awful mystery of life is at last but a homely and common thing. . . . To minds of sanguine imagination there will be a sadness in the tenor of the mystery, as if the key-note of the universe were low—for no poetry, no emotion known to the normal sanity of man, can furnish a hint of its primæval prestige, and its all-but appalling solemnity; but for such as have felt sadly the instability of temporal things there is a comfort of serenity and ancient peace; while for the resolved and imperious spirit there are majesty and supremacy unspeakable." The logical characteristic of this state is said to be "an apodal sufficiency—to which sufficiency a wonder or fear of why it is sufficient cannot pertain and could be attributed only as an impossible disease or lack. . . . The disease of Metaphysics vanishes in the fading of the question and not in the coming of an answer."

But if men should ever all agree that the mystical method is a subterfuge without logical pertinency, a plaster, but no cure, that the Hegelian method is fallacious, that the idea of Nonentity can therefore neither be exorcised nor identified, Empiricism will be the ultimate philosophy. Existence will be a brute Fact to which as a whole the emotion of ontologic wonder shall rightfully cleave, but remain eternally unsatisfied. This wonderfulness or mysteriousness will then be an essential attribute of the nature of things, and the exhibition and emphasising of it will always continue to be an ingredient in the philosophic industry of the race. Every generation will produce its Job, its Hamlet, its Faust or its Sartor Resartus.

With this we seem to have exhausted all the possibilities of purely theoretic rationality. But we saw at the outset that when subjectively considered rationality can only be defined as perfectly unimpeded mental function. Impediments which arise in the purely theoretic sphere might perhaps be avoided if the stream of mental action should leave that sphere betimes and pass into the practical. The structural unit of mind is in these days, deemed to be a triad, beginning with a sensible impression, ending with a motion, and having a feeling of greater or less length in the middle. Perhaps the whole difficulty of attaining theoretic rationality is due to the fact that the very quest violates the nature of our intelligence, and that a passage of the mental function into the third stage before the second has come to an end in the *cul de sac* of its contemplation, would revive the energy of motion and keep alive the sense of ease and freedom which is its psychic counterpart. We must therefore inquire what constitutes the feeling of rationality in its *practical* aspect; but that must be done at another time and in another place.

WM. JAMES.

NOTE.—This article is the first chapter of a psychological work on the motives which lead men to philosophise. It deals with the purely theoretic or logical impulse. Other chapters treat of practical and emotional motives and in the conclusion an attempt is made to use the motives as tests of the soundness of different philosophies.

III.—KUNO FISCHER ON ENGLISH PHILOSOPHY.

NO one perhaps has written the history of Philosophy at once so agreeably, so fully and so instructively as Prof. Fischer. His style is clear and for German remarkably unembarrassed. Every paragraph has its topic, every sentence its own thought.

The most difficult meanings are always made plain: indeed, if there is any fault in this respect, it is that lucid exposition is so easy to Prof. Fischer that, "like wealthy men that care not how they give," he often falls into a redundancy of felicitous statements and restatements by his resolve that there shall be no misunderstanding. This prodigality, which increases the power of his incomparable lectures, detracts a little from the perfection of his writings; and it is even more conspicuous in his volume on English Philosophy than in his larger work on the Continental movement. But still more engaging than the style of these writings is their hearty appreciation of the efforts of every thinker, however far removed in doctrine from the author's own stand-point, so that he seems to become the advocate of any system he expounds, treating it as its originator might have wished to do. Nor can one help admiring Prof. Fischer's ingenuity in tracing the connexions between successive systems and schools: for example, the relationship between Cartesianism and French Materialism of the 18th century, treated in the ninth chapter of the third book of *Francis Bacon und seine Nachfolger;* or the movement from Descartes to Spinoza in the first volume of the *Geschichte der neuern Philosophie;* or, in the fifth volume of the latter work, the interval between Kant and Fichte. But perhaps one may occasionally observe a taint of artificiality in his determination of the courses of these streams of influence, or of the positions of these stepping-stones of thought. There is a strong temptation to discover that events of any kind, especially events of the spirit, happened in such an order as a well-regulated mind would have been pleased to witness them in. For my own part, too, I should like to see a less strict adherence to Bacon's advice to intermix literary history but sparingly with criticism; or if it be admitted that the actual intermixture of exposition with criticism is bad, there should yet be found somewhere a place for criticism, either in notes, or in appendices to the several chapters. Criticism increases the interest and even the intelligibility of the narrative, and still more its value as a discipline and as a stimulus to thought.

Scanty as are the criticisms contained in the work on English Philosophy,[1] it is on them that this article must chiefly dwell. It may be assumed that readers of MIND are not unacquainted with the book's general nature and value. The first edition has long been translated, and it is much to be desired that the second edition of 1875, which is more than

[1] *Francis Bacon und seine Nachfolger: Entwickelungsgeschichte der Erfahrungsphilosophie.* 2te völlig umgearbeitete Auflage. Leipzig: Brockhaus, 1875.

twice the bulk of the former one, should also find a translator. As the title of the work imports, its author regards Bacon as the principal figure in the history of the Experience-philosophy, his successors as for the most part only continuing and developing his doctrines. Thus nearly two-thirds of the whole work are given to him. The first book contains an account of his life; the second, the most extensive, thorough, and systematic exposition of his doctrine that anywhere exists.

The excellence of Prof. Fischer's treatment appears at the outset. Bacon is misunderstood, he says, because critics suppose that a coherent thinker must be systematic; they do not find Bacon systematic, and so fail to perceive his coherence. Yet this quality becomes manifest, if we observe that whilst most philosophers are, like Descartes, synthetic thinkers, beginning with general principles and following them to their consequences, Bacon begins not with a principle, but with an end: and that accordingly his procedure is analytic, a search for the means of attaining that end. Hence "his philosophy is no system but a method or pathway". The end is the increase of human well-being and power; power is to be got by inventions, inventions by science, science by experience, and experience must be directed by a method. It is in this sense that Bacon is the philosopher of experience; not that he took experience for his principle, but that he saw in it the necessary means to his supreme end. And thus we may understand the relationship between the *Novum Organum* and the *De Augmentis:* the former treats of the means of making discoveries in science; the latter, as a preparation for this, takes stock of the knowledge we already have, notices the gaps in it, and endeavours by tracing the affinities of the sciences to promote that interaction amongst them upon which their common progress depends.

But I must not linger over the expository portion of the work, however tempting its excellencies; nor can one pretend that it is perfect. It would, for instance, have been advantageous to compare Bacon's teaching with what has since been done to develop the theory of Induction. There is no worse practice of critics than to conclude from an author's not happening to display acquaintance with a subject, that therefore he is of course ignorant of it, and I by no means bring such an accusation against Prof. Fischer. But certainly his work leaves many dark spots in Bacon's doctrines which the light of recent speculations should have illumined. Thus, in expounding Bacon's method of comparing instances in his first table, Prof. Fischer, after stating that we have first to assemble a number of instances agreeing in the presence of the phenomenon whose form is to be investigated, goes on to say that, if these numerous cases agree in some of

their conditions but not in others, we may safely regard the latter as unessential and not pertaining to the subject of investigation (p. 183); and he expresses no disapproval of this position, though if we admit that an effect may have different causes, it is plainly a bad one. Again, when expressly enumerating Bacon's faults, Prof. Fischer does not mention his ignorance of the use of hypotheses; nor the fatal indefiniteness in his meaning of the word *form*. Nor in the otherwise admirable sections on Prerogative Instances does he explain the nature of true prerogative instances, namely, their fitness for direct and easy subsumption under the law of Causation; and accordingly, in describing Solitary Instances, he does not remark the anticipation of the canons of Agreement and Difference. Yet some sound remarks upon such points would have greatly added to the instructiveness of his pages; so that on the whole one is not surprised to find that he considers a true Logic of Induction still wanting ("a work," he says, "which cannot be accomplished without a true theory of our sensations and the consequent critique of our faculties of sense-perception"), and that Bacon has done more toward it and illustrated it better than any one else before or since.

The most serious shortcomings which Prof. Fischer finds in Bacon are (1) his having trusted sense-perception without criticising it, (2) his failure to rightly appreciate poetry and fine art, (3) his attitude toward history and whatever depends upon a true historical method, as for instance mythology and religion. Much might perhaps be urged in extenuation even of the first and second of these charges; but I prefer to join issue on the third, because it is brought against not only Bacon but all his school. According to our author (p. 457), the modern Realistic Philosophy was from the outset averse to religion, and in Bacon's successors became positively hostile to it, because they were incapable of thinking historically. From which we might infer that Locke and Berkeley were hostile to religion, and that Hume and Adam Smith were incapable of understanding history.[1] Historical explanation Prof. Fischer would have us believe is wholly the fruit of the German Illumination. He distinguishes between the narration and the explanation of history (p. 468). To narrate history one has only to discover the facts and state them; and the discovery of facts in whatever department can only be prosecuted by the Baconian method. But to explain those facts is, it seems, quite another problem, to which that method is not equal.

[1] Hume's distaste for the more serious phases of religion was certainly connected with some of the worst blemishes of his History. But it is clear that in this case inaptitude for historical study was not the cause but the effect.

One wonders why not: to explain facts is to find their likeness to others and the causes from which they sprang. These causes are previous facts; and the relations of likeness and causation amongst all these facts are also facts. So that if facts can only be discovered by the Baconian method, it might be supposed that only by that method can they be explained. True, Prof. Fischer would perhaps reply; if the facts of history were all of them to be sought in nature, the Baconian method could both discover and explain them. But they are not: the causes of history lie in the spirit, and Bacon declares that the things of the spirit cannot be known by his method. But Prof. Fischer is aware that Bacon elsewhere declares his method to be as applicable to ethics and politics as to natural philosophy: and ethics and politics are things of the spirit. Here then is an appearance of contradiction, which I propose to avoid by understanding Bacon to mean that his method can discover nothing as to the substance and immortality of the spirit, with such other questions as might have been claimed by the king and his theologians, with whom he wished to live at peace; but that it is quite equal to the investigation of spiritual phenomena and their processes. It is these phenomena and their laws—spiritual facts—that interest us in ethics and politics; and surely it is in such facts that we must seek the causes of history, so far as history depends upon the spirit.

Until then some one produces an historical event which needs for its explanation some dogma about spiritual substance or what-not, we may conclude that history, like everything else in the concrete world, is to be explained by the inductive method. Bacon himself, to be sure, was not happy at interpreting the more subtle historical phenomena. One may smile at his interpretations of myths, though consciously incompetent to furnish in a lifetime as much wit as clothes the poorest of those exercises. But the cause of failure was not the inadequacy of inductive method, as we now have ample proof; but that Time, the mother of Truth, was not yet travailing with this particular birth.

I cannot help noticing another ground of objection which seems equally sandy. Bacon's method, says Prof. Fischer, depends entirely upon the understanding and sense-perception, quite rejecting the aid of imagination: "But how can that which imagination makes [*e.g.*, poetry and art] be explained without imagination"? (p. 467). This, however, takes Bacon's crude division of mental faculties much too seriously. Imagination and understanding do not differ in their contents, I mean, in the ideas of which they consist—nor necessarily in the order of those ideas, but in the way in which ideas are

believed to correspond, or not, with other ideas or with facts. A train of representations may at first be imaginative, if repeated an affair of memory; and if, having been forgotten, it is inferentially reconstructed, it becomes a product of understanding. Prof. Tyndall has told us how exact science is aided by imagination: and on the other hand poetry and art may be understood. An unimaginative man indeed cannot understand them, but that is because he lacks the appropriate experience. That Bacon was unimaginative will be maintained, I presume, by no one who is not driven to prop up a bad theory with worse facts.

The third book of Prof. Fischer's work treats of Bacon's successors. No one is so determined as the author to show that all subsequent English philosophers were merely disciples and interpreters of Bacon. And this is a case in which, I grant, the evidence can only be appreciated by the imagination. Is it too much to say, that the traces of Bacon's influence in the works of his successors are so slight, that even a critic who had formed a low estimate of his importance, might well be surprised to find no more? This, however, is how Prof. Fischer predetermines the development of the Experience-philosophy. There are five stages: (1) According to Bacon knowledge is experience, and the experiential or natural sciences are the foundations of all sciences: this position is Naturalism, represented by Hobbes. (2) The question arises, What are the conditions of experience? and the answer, sense-perception, marks the Sensualism of Locke. But now what is perception? Either spiritual impressions, which gives (3) the Idealism of Berkeley; or corporeal impressions, which gives (4) the Materialism of the French Illumination. Lastly, since from impressions of any sort there can result no objective, necessary, actual cognition, we have (5) the Scepticism of Hume.

No reasonable man would complain loudly of this suggestive outline, as long as it was not too rigorously pressed. But when Prof. Fischer says the sequence is, in fact, so simple, it could not have been otherwise (p. 512), one cannot help remembering what the facts really were; and then the artificiality of the arrangement becomes obvious. The impropriety of calling Locke's philosophy Sensualism, or Sensationalism, has often been insisted on, and I shall presently revert to it. The word Naturalism[1] is curiously misapplied to Hobbes's system, the most

[1] Perhaps the best use of *Naturalism* is as a name for the philosophy of emancipated Positivists—I mean, those whom Comte has helped to enfranchise, as distinguished from those whom he has enslaved. The name is useful because of its twofold opposition, to Supernaturalism on the one hand, and on the other hand to Artificialism, such as that of Comte and Hobbes.

characteristic portion of which, the Politics, postulates the abrogation of Nature. Was it so called to avoid calling it Materialism, and thereby to preserve history from an illogical repetition? For Materialism, instead of waiting, as no doubt it should have done, for the fourth place in this series, fell on its first appearance into the first place, and then, perversely delaying its second appearance until after Hume, plumped down into the fifth. Just like its clumsy *Geistlosigkeit!* But, says Prof. Fischer, "never has a *post hoc* been so little a *propter hoc* as in this advent of French Materialism *after* Hume. French philosophy of the last century, coming as it does, in chronological order, subsequently to the English, looks like a thing belated." (p. 663). The same might be said of much other philosophising of the past and present centuries.

But even were events more obsequious to logic, there remains a wider objection to thus regarding the history of philosophy as entirely embodied in the chief philosophers: such treatment is too abstract, and falls needlessly short of the fulness of fact. Works like M. de Rémusat's *Philosophie en Angleterre* (reviewed in MIND XIII.), dealing for the most part with the less original and influential writers, are in this respect almost superior: they are at least a good preparation for a better treatment, because they assist us in estimating the contents of common sense. Philosophy and the sciences must have arisen in the first instance out of the menstruum of common sense, must have been slowly differentiated from the public stock of less definite traditions and beliefs. The sciences, growing more and more certain and definite and making for themselves special spheres, have gradually (except some of the more backward) escaped from the influence of common sense; but philosophy is still to a great extent under its control. For, having a more general and vague subject-matter, and discussing problems which perhaps cannot be dogmatically solved and about whose solution there has never been much agreement, philosophers have seldom felt quite sure that they had discovered much truth, whilst the uninstructed have never hesitated to assure them that they had invented incredible absurdities. The few, doubtful, divided, docile and sympathetic, cannot with constancy withstand the many, confident and impenetrable. And accordingly the history of philosophy can only be rightly understood in relation to common sense, and should be written with a full consciousness of its connexion with that vast body of public belief, by which, like a stream flowing through a marsh, it is continually fed and continually obstructed.

Historians of philosophy, however, too often content themselves with relating the intellectual combats and adventures of

a thin series of thinkers, or exceptionally describe them as obscurely influenced by climate, soil, race, and other circumstances of the remoter environment. Neither course is adequate, nor is a combination of them. Climates may have helped to diversify the cast of thought of nations so widely separated as the Greeks and Hindoos, but cannot account for a difference between the philosophies of Germany and England. National genius perhaps stands for something, though it is hard to say what; and we cannot cite as explanatory a fact which itself desiderates explanation. But it is in nearer conditions that we must seek the origin of any particular school or system; and probably these conditions may be best summed up under the heads of antecedent philosophy and common sense. Whoever has been led by reflection to anything like a system of opinions will consider for himself whether these are not its proximate sources.

In common sense I include an element which in many respects resembles philosophy, and might with much propriety be considered as a system or school of systems of philosophy; though whether it has arisen in like manner by a process of differentiation out of the general body of common sense (as it is certainly alike influenced by it), or has been otherwise formed, we need not here inquire;—I mean theology. Modern philosophy is distinguished from the ancient hardly less by the fact of having grown in the presence of a scientific theology than by the advantage of having ancient philosophy behind it. All the chief controversies about substance, cause, the origin of knowledge, are inflamed and aggravated by the impregnation of this contact. Theology is the earliest philosophy of nearly every thinker; and without denying the possibility of his afterwards approaching all questions quite unprejudiced by his first lessons, we may be sure that such impartiality is rare, and we ought not to countenance the fiction that it is the rule. Toward theology almost everyone's mind must be either favourably or unfavourably disposed. As long as theological doctrines seem best to explain the facts of the physical, still more of the moral world, there will be (to use a Kantian phrase) an interest of reason in their favour. If ever there comes a time when the facts of the physical, still more of the moral world, seem more intelligible from another point of view, the interest of reason must change sides. A fact so weighty, if it be a fact, should be candidly recognised; and the historian of philosophy should trace explicitly the connexions of each system, not only with its predecessors, but also with the common sense of its age, and especially with theology. The work that seems to me to fulfil best these requirements is Maurice's *Moral and Metaphysical Philosophy.*

Prof. Fischer's account of Hobbes is impartial and good, though somewhat disproportionately short. Much more space is given to Locke; and probably many readers would learn more from these lucid pages than by a first perusal of the original works: for Locke, easy as he seems, is really a very difficult author; and the *Essay on Human Understanding*, in particular, resembles the English language, in as much as it is easy to get a smattering of, but hard to know thoroughly. Prof. Fischer's exposition of Locke is however marred by the support he gives to an objection often urged against the great experientialist's doctrine, and which one is rather surprised to meet with in so able a work as this, namely, that in strictness the two sources assigned to experience, Sensation and Reflection, are reducible to Sensation.

As Prof. Fischer somewhere observes, "jeder Dualismus strebt nach Einheit,"—every Dualism seeks to merge in Unity: in other words, the philosophic mind is strongly disposed to generalise to the utmost. But this high instinct, the creator of science and philosophy, is apt, like instincts of meaner kind, to outrun discretion; and if it has stimulated us to the discovery of a vast deal of truth, it has at the same time impelled us to construct unnumbered propositions, which wear a vain appearance of knowledge where there is not, and cannot be, the reality. Hence Prof. Bain classes it amongst the fallacious tendencies of human nature; and I fear its tendency is realised in error whenever anyone is tempted to reduce Locke's psychological dualism to unity under the name of Sensation.

It appears that the distinction which Locke wished to establish between Sensation and Reflection may be best understood as that which, in the more precise language of recent psychology, is drawn between the objective and subjective orders of feelings; and this certainly is a distinction which, under the present conditions of human consciousness, cannot be obliterated. If we accept the hypothesis that the objective and subjective orders of feelings have been slowly differentiated out of more primitive states of consciousness which were neither; and if we make the vain attempt to realise what those earlier states were like; we may perhaps be led to surmise that on account of their dimness and indefiniteness they were more nearly akin to the subjective than to the objective order: in which case it seems to be the lesser absurdity to regard Sensation as reducible to Reflection. But we must not forget that this is a merely hypothetical condition of things, and one that cannot be verified. That supposed primitive state of mind is to experientialists what intellectual intuition has been to certain transcendentalists, and what ecstasy was to the Neo-Platonists; a consummation devoutly to be wished, but which no one

believes ever to have been attained. We may be sure that an Englishman, however delicately he balance his body and muffle his senses, to shut out the pressures and greetings of the object, never succeeds in swooning back into that paradise where blissful cuttle-fish presumably dwell, but whence he has been harshly driven into an outer region of complex relativity and distinct consciousness. Locke's doctrine, therefore, that Sensation and Reflection are co-ordinate factors in human consciousness remains true. All known consciousness involves comparison; Sensations and Ideas of Reflection cannot be known as such, except in contrast with one another. And if, on the one hand, Ideas of Reflection invite us to derive them directly or indirectly from Sensations; on the other hand, there cannot be a sensation that is not distinguished from others, nor a definite sensation that is not classed with the ghosts of its own former indefinite excitations, and thus dependent upon Ideas of Reflection.

Prof. Fischer has a sound vindication of Berkeley's descent from Locke, as against the theory of his descent from Malebranche which some critics, misled by superficial similarities of doctrine, have maintained. It is to be regretted that Prof. Fischer's design of viewing the whole series of English philosophers as dependent on Bacon, seems to have precluded him from noticing Berkeley's later writings. As to the treatment of Hume, what occurs to me to say about it may be incorporated with the following remarks upon our author's animadversions upon the entire career and results of English Experientialism: animadversions which are necessary in order to secure a starting-place and open field for the German movement.

He urges in the first place that the experientialist principle, that all knowledge is derived from experience, too rigidly limits the scope of philosophy and from the outset excludes from our view any knowledge that may be only otherwise obtainable. This is a plausible objection, which must occur very naturally to an opponent of experientialism, and for which adherents of this doctrine, by the way in which they state and maintain it, sometimes furnish too good excuse. However, it proceeds upon a mistake as to the nature of the experientialist principle: which is best understood not as a fundamental dogma with which all other propositions must at any cost be squared, but rather as a scientific hypothesis which in the judgment of its supporters already explains so many facts, that it is reasonable to go on endeavouring to apply it to others until it is disproved. Such an hypothesis is always liable to be disproved by the discovery of negative instances, and is a perpetual challenge to produce them. Transcendentalists accept this challenge when they point out what in their judgment are necessary synthetic truths indepen-

dent of experience, such as the axioms of mathematics. To which it is replied that these axioms are indeed amongst the most certain that we know; but that we do not know them to possess absolute certainty, and that, stripped of that factitious attribute, which now cleaves to them chiefly by the attraction of asseveration, they seem to be derived from experience.

By a similar defence Prof. Fischer's second dart is blunted. Experientialism, he says, unable to explain the possibility of necessary cognition, leads to Scepticism. To be sure, if it be Scepticism to doubt the possibility of absolutely necessary cognition. For all other general propositions pretending to truth must, of course, like its own constitutive principle, be regarded by Empiricism as scientific hypotheses, until they are disproved or proved to be necessary. They may be disproved by the discovery of negative instances. How they can be proved to be necessary is less clear: and to rest such proof upon the plainness with which they may be realised in an intuition, or upon a sense of their necessity or of the impossibility of imagining the contrary, or upon our recognition of them as conditions of nature as an object so far as our investigations have gone—looks like that attempt to establish an universal upon particular perceptions which Prof. Fischer says is the vain hope of Experientialism.

To doubt the possibility of necessary cognitions is not however the same thing as to doubt the possibility of actual and objective cognitions. Prof. Fischer uses the words *objectiv*, *nothwendig* and *wirklich* (p. 513-4), as if they were of course concomitant qualifications of knowledge; yet this is far from true. If Hume had lived to enjoy the greater precision of language which has been forced upon his followers by the disciples of Reid and Kant, he might (for example), whilst questioning the necessity of causation, have admitted its reality, in the sense that it constantly obtains in experience, and its objectivity, in the sense that it is the same to everybody. But it was his error, I may say his whim, to place the results of his philosophy in opposition to the beliefs of common sense. There is no true opposition between them; for those results contained the explanation of these beliefs. Berkeley in like case was far wiser, maintaining that his theory of matter really agreed with the belief of unsophisticated men; and Hume would have done well to follow his example. He would thus certainly not have escaped (any more than Berkeley), but he would at least not have invited, the reproach, which Prof. Fischer still thinks just, of having broken with common sense.

A last objection to the Experience-philosophy is that it assumes the possibility of experience, whereas this should have

been explained, and accordingly Kant undertook to explain it. Moreover, in assuming the possibility of experience, the experiential philosophers assumed the existence of such elements of experience as substance and cause; which, having assumed, they solemnly proceeded to deduce. In his work on the Continental philosophy, our author repeats this accusation, which was first urged by Kant himself. And against Locke the charge is too nearly just; but to bring it against Hume implies a complete misconception. Observe the ambiguity of the word experience: it may mean (1) the full organic consciousness of an adult human being (this is what Kant means by *Erfahrung*); or (2) merely a series of feelings (which Kant called *sinnliche Eindrücke*).[1] It would have been a scientific procedure for Hume to try to deduce experience in the former from experience in the latter sense. Prof. Fischer and Kant imagine that he pretended to deduce the adult consciousness from the adult consciousness.

The merely sceptical aspect of Hume's philosophy, however interesting to himself, and an astonishing performance in its way, may now be regarded as literary colouring. The permanent scientific interest of his writings lies in the explanation they offer of the growth of consciousness, and the nature and formation of beliefs. As to Causation, for example, his position may be stated thus: Grant me a series of feelings in which similar sequences frequently recur, and certain laws of the association of feelings, and I will show you how a belief in necessary sequence or causation will arise. Prof. Fischer seems to think that in such *data*, "the whole of Experience and Causality" (p. 786) are already implied. But where? Is it in the series of feelings and their recurrent sequences? Hardly: for we know as a matter of fact that, in a series, similar sequences sometimes recur by chance, that is, apart from circumstances which are recognised as causal; and it is supposable, that the world is so vast that even all the sequences which we class as causal are really accidental conjunctures. Does necessity, then, lurk in the Laws of Association? Equally not: for those laws state that feelings which have occurred together, or are alike, do recur together, but not that they must do so. Hume's data therefore, taken severally, do not imply necessary Causation; nor do I believe they can be shown to imply it if taken together. But if not, his problem remains legitimate, namely, to show how by the recurrence of sequences, possibly fortuitous, there may be generated a sense of their necessity.

[1] *Krit. d. r. V.* Einl. § 1.—Mr. S. H. Hodgson in his *Philosophy of Reflection*, notices Kant's difference from Hume as to the meaning of experience.

I cannot help noticing the way in which Prof. Fischer thinks that Kant improved on Hume. He intended, it seems, to explain Experience, as Bacon sought to explain Nature, that is, he investigated the precedent conditions out of which it arises. These conditions were not to be above experience, nor in it, but *before* it ("nicht über derselben, wie die deutschen Metaphysiker, nicht in ihr, wie die Englischen Sensualisten, sondern *vor* ihr," p. 786): and he found them in pure reason. May I not add—together with the manifold of sensation, or feelings? Pure reason, then, and perhaps feelings are conditions which precede experience. One wonders how! The manifold apart from experience, if it be possible, is out of Time, where there is no before or after. Pure reason, too, I suppose, must apart from experience (or during it for that matter) be also out of Time: how then can it precede experience? Is not this comparison between Kant and Bacon a little fanciful? The view which it suggests of Bacon's method is somewhat surprising in an exact writer; but in relation to Kant it is far more strange. Surely, by conditions *à priori* Kant meant not *prior to*, but merely *not derived from* experience.[1]

Kant's analysis of experience, far from being an improvement upon Hume's, was of a more antiquated kind. It resulted in (1) pure reason, containing the most abstract forms of intuition and thought, (2) feelings. Both Hume and Kant postulated feelings. These granted, with the laws of association, Hume undertook to derive from them the most abstract forms of judgment. But Kant wanted to be given both. Now if we remember that pure reason is not appropriate to an individual mind (though a reader of Kant or Fichte is liable to think so), and if we consider how difficult it is to attach personality of any sort to such an abstraction, it becomes little else than a place of forms or ideas, very similar to Plato's intelligible world. The manifold of sensation, or feelings, corresponds to Plato's matter. With Kant, as with Plato, a union of the forms with the material is needed to constitute experience, or nature. In both cases it is impossible to see how the union is to take place; a Demiurgus is needed; and Kant introduces, by way of Demiurgus, the minds of individual men. These apprehend the manifold, imagine, associate, recognise, judge, and so on. Such at least seems to be the view which breaks least with common sense; but perhaps the whole clumsy machinery is meant to be worked by the self-activity of pure reason. To me these

[1] Thus in the section referred to in the previous note he says: "Ob es ein dergleichen von der Erfahrung und selbst von allen Eindrücken der Sinne unabhängiges Erkenntniss gebe? Man nennt solche Erkenntnisse *à priori*" &c.

agencies are about equally intelligible. How to do without either, is the metaphysical problem which has confronted us since the days of Hume.

With Hume Prof. Fischer's history of English philosophy ends; and perhaps, like many another observer, he opines that there the thing itself ended; or that, if not, it ought to have done so. But this may be another instance of the illogical perversity of facts. Certainly much philosophy has been written in England since Hume, and it is a very interesting inquiry (which of course at the end of an article I can only raise) whether any important advance has been made upon his doctrines.

Not reckoning special improvements effected in the 'moral sciences,' within which English thought is so apt to straiten itself, we may perhaps claim to have made two advances of the utmost consequence: (1) the analysis of Space and Time in reply to Kant's Transcendental Æsthetic; or if this be too special for particular mention, there is at any-rate (2) the theory of Evolution with its corollary of inherited experience. The second step is a long one, and places us upon an eminence from which we are able to see not only fuller interpretations of many psychological and metaphysical problems, but also to discover the deepest and most secret idea of English philosophy.

The conception which that philosophy has worked toward with ever increasing clearness of vision, is that human consciousness, however ancient its origin, is a natural growth. To demonstrate the naturalness of the mind was an essential step to the justification of positive law, to social science, and to a coherent view of the world. After a crude and premature introduction by Hobbes, this conception was half-unconsciously advanced by Locke under the special form of a denial of innate ideas. Innate ideas were by those who believed in them prized as witnesses to the soul's supernatural descent; and in disputing their existence Locke dealt at the doctrines they were in harmony with a much heavier blow than he intended. To him, no doubt, it merely seemed that the greater part of our genuine knowledge plainly originated in particular experiences; this therefore he took to be the natural and universal mode of acquisition, and endeavoured to prove it to be so by a detailed examination of the mind's contents. But, if so, innate ideas were superfluous, and for this amongst other reasons to be rejected. Whether an individual's consciousness is conditioned by any sort of mental antecedents other than innate ideas, be they perhaps still resolvable into particular experiences, ancestral actions and feelings, he of course did not inquire. His work was to make a preliminary classification and analysis

of mental phenomena, and to suggest the fruitful hypothesis that the more abstract and complex of these had arisen from the particular and simple. This was sound method. The detailed elaboration of his scheme exhibited the shortcomings of an initiative essay. The analysis, after a step or two, everywhere halted upon the road. Many highly complex perceptions appeared to him comparatively simple, and were treated much too superficially: instance Space and Cause, which in the guise of Extension and Power he held to be directly gathered from experience, thus (as it has been objected) assuming the very thing to be explained. The synthesis was still more defective. Locke omitted to find, even for the complex states of mind which he recognised, any intelligible process by which they might have been produced. He speaks of the mind "putting together" simple ideas, "compounding" them, "separating" them, "making haste to get" abstract ideas, and so on. The mind that had to do all this might as well have been allowed some innate principles for guidance. But the true process of association he observed only in some abnormal cases.

The problems left to his successors may be roughly grouped as follows: (1) To complete the classification of mental phenomena, and prosecute the analysis of those complex perceptions which he had treated as simple, or had inadequately investigated. Locke's discussion of the emotions had been conspicuously feeble; one could hardly gather from it that any passion was more voluminous than a bad flavour; and this topic was not very successfully enlarged upon in a systematic manner until the present century. A great example of the analysis of complex perceptions was immediately given by Berkeley in his *Theory of Vision*. Hume, however, did little or nothing to support the advance in this direction. And it was not until after Kant had raised the metempirics of intuition (if I may so express it) into one of the principal stumbling-blocks of philosophy, that the efforts of English thinkers to clear it away resulted in those analyses of the perceptions of Space and Time which I have mentioned as amongst the most conspicuous of their recent triumphs.

(2) To disabuse men's minds of certain fictions of the same class as innate ideas, but whose unreality Locke had failed to discover. Here Berkeley again proved equal to the task before him, despatching quickly abstract ideas and matter as a thing-by-itself. Hume followed this time in great force, completing the critique of Substance, and adding his critique of Causation. He thus fully accomplished the demolition of what may be called the metempirics of judgment, and left in this department little for his successors, except the duty of careful restatement

according to their progress in psychological knowledge and precision of language.

(3) To determine and illustrate the laws in accordance with which the mind grows and works. This problem Berkeley overlooked; though without some solution of it none of his results could be quite satisfactory. It became, however, the great achievement of Hume; who revived the Laws of Association, which had been strangely neglected since Hobbes; and applied them with far greater subtlety and penetration to the explanation of human nature. How Hume's work in this field, supplemented by Hartley's, has been continued by an unbroken series of philosophers into our own day, is well known. And upon the faithful pursuit of the same methods English Experientialism must depend for the means of completely illustrating the naturalness of mental phenomena.

The theory of Evolution, if it has not by itself, as applied to Psychology, solved any first-rate problem (not having occasion), has greatly contributed to the solution of very many, and seems to me to have immensely confirmed previous results. By extending the period of time during which the association of feelings has been proceeding, it enables us the more readily to understand the tenacity of inseparable growths, and the approaches that have been made toward perfection in the correspondence between the subjective and objective orders. The variety of feelings, the consolidation of emotions, the definiteness of intuitions, the precision of inferences, and even the persistence of metempirical illusions and attitudes of thought, are alike rendered more intelligible, and their gradually accumulative origin more credible, by the antiquity of ancestral experience. The theory of evolution has also given a powerful incentive to the naturalistic interpretation of the mind, by furnishing a clue to the agreements and differences which exist between the minds of men of various races, and between the minds of men and of lower animals. Suggestions toward a Comparative Psychology are indeed old enough. In the English school Hume is conspicuous for having encouraged it as much as might be in his day. And Locke frequently adverts to the faculties of animals, observing that they perceive and remember, but compare only imperfectly, and abstract not: balancing such reflections, however, on the other side with occasional excursions into the conjectural psychology of cherubim and seraphim.

On the whole we may conclude that, although English philosophy since Hume has no such startling movements, catastrophes and restorations to point to as may be naturally looked for by those who are accustomed to re-arch their own intellectual firmament every decade, it has nevertheless shown

signs enough of living activity to warrant the notice of historians. Moreover, the impartiality which an historian desires to exercise seems at length, with regard to the recent period, to have become possible; inasmuch as its polemic was directed chiefly against Kant, and this may be considered as probably at an end. A yet more uncouth foe now shakes his dart over the island.

CARVETH READ.

IV.—ON THE POSITION OF FORMAL LOGIC.

WRITING nearly half a century ago in the *Edinburgh Review*, Sir William Hamilton deplored the combined perversion and neglect which Logic had experienced in this country for more than a hundred and fifty years. At the period at which he was writing, however, interest was being revived in the science, chiefly in consequence of the publication of Archbishop Whately's *Elements of Logic*, and since that time we have had a quick succession of works, written from various points of view, including Mansel's *Prolegomena Logica* and Hamilton's own *Lectures*, Mill's *System of Logic* and Whewell's *Novum Organum Renovatum*, Boole's *Laws of Thought* and De Morgan's *Formal Logic*, Venn's *Logic of Chance* and Jevons's *Principles of Science*; but it may still be doubted whether that branch which was distinctively revived by Whately, namely, Formal Logic, is yet satisfactorily established on an intelligible and independent basis. In Hamilton's own exposition it was in danger of being confused with Psychology, and, if that view be rejected, it tends to be overshadowed on the one hand by the material logic of Mill and his school, and on the other hand by the elaborate and ingenious developments on a semi-algebraic basis of Boole, Jevons and others. There is moreover a current danger of its proper nature being lost sight of in an apparently superficial attempt to reconcile opposing theories; for example, in Jevons's and Fowler's deservedly popular text-books. The former says, in answer to the question whether logic is concerned with language, thought or objects, that it treats in a certain sense of all three, an answer which is scarcely permissible unless we go on at once to distinguish the different parts of the science in which it deals with each respectively; and the latter begins with a definition that would satisfy Hamilton, but follows almost entirely on the line of Mill. We cannot rest satisfied with this way of shirking difficulties, though it may perhaps introduce a greater seeming simplicity into an elementary treatise.

In a particularly interesting and useful essay published in the first number of MIND, Mr. Venn gives a brief summary of the different views as to the nature and province of Logic. "Everyone," he says, "will admit that a proposition is a statement in words of a judgment about things"; and here we have three sides of the proposition, any one of which may be dwelt on to the exclusion of the others. We may select for special attention, first, the *words* in which the proposition is expressed; secondly, the *judgment* of which it is the expression; or, thirdly, the reference to *things* which is contained in it. The same may equally be said of terms and arguments; and "hence we should apparently be led to three alternative views as to the general nature of logic. One of these views, however,—namely, that which lays the stress on the words in which the judgment is couched,—need hardly be discussed. It has indeed been maintained by Whately that logic is concerned with language, and with language only. But he does not adhere to this limitation, as indeed no clear thinker could, for the secondary and dependent nature of language as being a medium of thought, or having reference to facts, is far too prominent to be disregarded. Hence it follows that supporters of this view are under such powerful attraction to one or other of the remaining two, that for all practicable purposes we need not take any but these into account." So far as Formal Logic, however, is concerned, there is still another alternative, and in a discussion as to the province of logic we shall not get far unless, to commence with, we treat the formal and material aspects of the science separately. The attempt to deal with them in too close connexion is partially accountable for the anomalous position of formal logic in some works on the science; while it also tends to put in an exaggerated form the real divergence between different schools of logicians. The view that even formal logic is concerned with language pure and simple is undoubtedly open to the objection that Mr. Venn urges. But the same cannot be said if we take language in its distinctive character as the instrument of thought; and I shall try to show that formal logic may be established on this basis without losing its recognised character: whilst if, on the one hand, it is treated as Hamilton and Mansel treat it, it cannot be adequately marked off from psychology, and if, on the other hand, the whole science is to concern itself with *things*, the formal side of it cannot but remain in an anomalous and undefined position.

Whately and De Morgan are leading examples of logicians who have given prominence to the connexion between logic and language; but these writers either entirely slurred over its subjective aspect, or referred to it in a crude and apparently

inconsistent way. Hamilton's strictures on Whately for having said that "Logic is entirely conversant about Language" are well known; and it is also generally recognised that they are not fully justified. The statement here quoted must always be taken in connexion with another statement of the same writer, namely, that Language of some kind or other is an indispensable instrument of all Reasoning that properly deserves the name. This is the connecting link between Whately's two positions that logic is concerned with the process of reasoning and also with language. Reasoning and language considered respectively as the subject-matter of logic are not in his view opposed to each other; logic deals with the latter just *because* it deals with the former. At the same time there can be no doubt that Whately did not sufficiently bring out the connexion in his writings, even if he ever fully realised it to himself.

De Morgan again is sometimes very explicit:—"Formal logic," he says, "deals with *names* and not with either the *ideas* or *things* to which these names belong"; and again, "Names are exclusively the objects of formal logic". But this is certainly going too far; if De Morgan had fully adopted this view in his own treatise, he would have produced not a Logic at all, but a Grammar. Elsewhere, however, he gives a far better statement:—"Logic is that branch of inquiry in which the act of the mind in reasoning is considered particularly with reference to the connexion of thought and language"; and he also says that the purpose of his *Formal Logic* is "the examination of some of the manifestations of thinking power in their relation to the language in which they are expressed". But he gives no adequate account of what he means by "thought". For our present purpose it is desirable to limit this term to the operation of what Hamilton calls the elaborate or comparative faculty, the faculty of apprehending relations. With regard to his practice, De Morgan does constantly tend to subordinate the purely *mental* side of logic: for example, in discussing the Import of Propositions, he lays down the position that so far as formal logic is concerned we are dealing with symbols, and it does not matter whether we consider them to represent things, thoughts or words. But although in formal logic we may to a large extent leave the ultimate reference to the objective world out of account, we cannot do the same with the mental reference. Language is a symbolism indeed, but a thought-symbolism, and it is this fact alone that can give it any logical significance.

The view that language is in any sense the subject-matter of formal logic must be based on the two following propositions:—First, Thought, at least in any of its higher manifestations, requires the aid of language (using the term "language" to

mean a system of signs of any kind). This is admitted by logicians who take an extreme conceptualist view of the science. "Language," says Mansel, "taking the word in its widest sense, is indispensable not merely to the communication but to the formation of thought." Hamilton indeed speaks of such a conception of logic as that to which I am referring as involving "a psychological hypothesis in regard to the absolute dependence of the mental faculties on language, once and again refuted"; but in his *Lectures* he remarks, in speaking of the Formation of Concepts, that the concept "would fall back into the confusion and infinitude from which it has been called out, were it not rendered permanent for consciousness by being fixed and ratified in a verbal sign. Considered in general, thought and language are reciprocally dependent." Whether or not reconcilable with the statement previously quoted, this admission is all and more than all that I require for my present purpose.

The second proposition is that as Thought becomes complicated, and reaches its higher forms, it also becomes more and more symbolical, that is, we use language without consciously and fully thinking out each step; and in this symbolical use of language, we are liable to commit errors and omissions of various kinds. This proposition also is one that could abundantly be illustrated from the writings of conceptualist logicians.

These propositions lead to the conclusion that a practical science is required to treat of language (and from the nature of the case we must now confine ourselves to verbal language), distinctively in its relation to thought; and to establish principles according to which the relations of names and propositions may really correspond to actual relations of concepts and judgments. This practical science will coincide with what is usually treated as Formal Logic.

In illustrating this position we may start from the conceptualist view of Logic as expounded by Hamilton and Mansel. They define Logic as "the science of the laws of formal thinking," and the first question to be asked is what is here meant by "law". Hamilton gives an explicit answer:—"By *law of thought*, or by *logical necessity*, we do not mean a physical law, such as the law of gravitation, but a general precept, which we are able certainly to violate, but which if we do not obey, our whole process of thinking is suicidal or absolutely null". But this seems to land us in a dilemma. If we are not compelled to obey these laws, why, we at once ask, ought we to obey them? why will their violation render our whole process of thinking suicidal? The only answer that I can conceive is that otherwise our thought will not correspond with reality. If I am able subjectively to think this, that or the other as I please, the necessity of a

correspondence with objective truth is the only ground on which I should feel myself called upon to exercise a preference. If, for instance, I were able to think that a thing could both be and not be at the same time, it would only be the observed fact that things did not both exist and not exist at the same time that would prevent my asserting them to do so. But if Hamilton admitted any such reference to objective conditions as is here involved, his whole conception of logic would at once fall away. Mansel does not explicitly expose himself to the same difficulty. "The phrase *necessary laws of thought*," he admits, "ought to imply that we cannot think at all except under their conditions." But even Mansel elsewhere speaks of these laws as "laws to which every sound thinker is bound to conform," and this ought to imply that we can escape conforming to them.

The considerations to which the inconsistency here referred to is due are not far to seek. If the Laws of Thought are necessary in the sense that we cannot disobey them, how are we to account for the fallacies that actually occur in formal reasoning? Thus Prof. Jevons remarks: "The Laws of Thought are often called necessary laws, *i.e.*, laws which cannot but be obeyed. Yet, as a matter of fact, who is there that does not often fail to obey them? They are laws which the mind ought to obey rather than what it always does obey."

Mansel's solution of the difficulty, which I should in the main accept, is that when we commit a logical fallacy we do not really *think* at all; the verbal combinations, involving the fallacy, are unaccompanied by clear and deliberate thought, and in extreme cases may even be described as verbal combinations wholly unaccompanied by thought. It would certainly be going too far to maintain that in so-called fallacious thought, thought proper is wholly absent; but we may more guardedly say that *in so far as* fallacy occurs thought is absent. We have seen that thought is necessarily assisted by signs of some kind; and when these signs are employed with a full and complete consciousness of all that they imply, we have what we may describe as clear and deliberate thought, and then fallacy is impossible. But in so far as our signs become *mere* signs, we may have the phenomenon of confused thought, perhaps involving logical fallacies: to take an extreme case, if in the course of an argument we were to pass from "All A is B" to "No B is A" we should have been manipulating symbols with almost entire unconsciousness of their proper implication. The phenomenon then of so-called fallacious thought is only possible because a symbolism is employed and without proper precautions. It would be going too far to say that it is always a *verbal* symbolism that is the source of error. On the grounds, however,

that in the present stage of our development this is the most potent source of error, and that verbal signs are the only kind admitting of a systematic investigation, we confine ourselves to this case.

Mansel does not go out of his way to make even the above qualification, and he admits almost in so many words that at any rate so far as logic as an art is concerned we are dealing not with thought itself but with its expression. Now, how far is this consistent with his general view of the province of logic? He has formerly said that the conditions for the existence of logic as a science and as an art respectively are, first, that there exist certain mental laws to which every sound thinker is bound to conform; second, that it is possible to transgress those laws or to think unsoundly. But now we see that, strictly speaking, it is not possible to think unsoundly, *i.e.*, if we mean by thought a definite process of mind in which, if symbols are employed, it is only with an adequate consciousness of their full meaning. It is this clear and deliberate process that we call positive or intuitive thought. In proportion as our symbols are used with a less and less adequate consciousness of their full meaning, the thought becomes symbolical. Symbolical thought is not necessarily confused or fallacious, but it may be so, and whilst we cannot violate the Laws of Thought in positive thought, we are able to do so in symbolical thought. Now confining ourselves to a consideration of symbolical thought in its relation to positive thought, we seem to find an adequate scope for logic as a practical science, which is wanting on the strict conceptualist view, and also a more satisfactory answer to the charge that its principles are mere frivolous tautologies than Mansel himself is able consistently to give.

It is difficult moreover to see how Logic can be adequately marked off from Psychology on the view of Hamilton and Mansel. Let us examine what Mansel himself says about the relation of logic to psychology:—"Psychology inquires what are the actual phenomena of the several acts and states of the human mind, and the actual laws or conditions on which they depend; and in this sense the Laws of Thought themselves are empirical, and within the province of Psychology; inasmuch as it is a matter of fact and experience that men do reason according to them". But surely it is also a matter of fact and experience that men cannot think or reason other than according to them; for how except on a basis of experience can such a conclusion be obtained? Then the determination and exposition of this fact will also belong to Psychology. Mansel himself elsewhere says:—"The inquiry what is the actual nature of Thought as an operation, to what laws it is subject and to *what extent they are*

efficient does not strictly speaking fall within the province of Logic itself".

And now so long as we remain in the region of positive thought, what is there left for logic? "Logic does not ascertain as a matter of fact that men do reason in this or that form, as governed by this or that law; but on the assumption of certain laws, we are to determine *à priori* the forms which legitimate thinking ought to exhibit, whether mankind in general do comply with them or not." But we have just seen that, so long as mankind really thinks, it *must* comply with these laws, and it is this fact solely that gives them their great importance. So long as we are concerned with *positive* or *intuitive* thought in its purely formal aspect, no question of "ought" can be involved. That consideration is, however, introduced when we turn to the expression of thought.

We may further illustrate the difficulties in which Mansel is involved. "Logic," he says, "deals with the products of the several thinking acts, with concepts, with judgments, with reasonings, as, according to certain assumed laws of thinking, they ought to be or not to be." But if it is possible for the mental products arrived at as the result of positive thinking to be this, that or the other, we have no right whatever psychologically to assume the laws in question. The psychological justification of the assumption is the fa t that in so far as any act of pure thought is concerned, the products are necessarily determined, whether we will or not, in accordance with them. Let us, however, amend the position thus:—Logic deals with the verbal expression of the products of the several thinking acts, with names as representative of concepts, with propositions as representative of judgments, with syllogisms as representative of reasonings, as, according to certain assumed laws of thinking (*i.e.*, assumed by Logic, though determined by Psychology), they ought to be or not to be;—then Formal Logic is clearly separated from Psychology, and we have a practical science where one is obviously needed.

Mansel approaches the above view when he says that "Logic has given to determine the necessary relations of concepts to each other; but in so doing it is compelled secondarily to exhibit the corresponding relations of the sounds by which concepts are represented". I should prefer to say that this is what logic should do primarily. No doubt concepts in themselves do bear necessary relations to each other. But these relations psychology determines. As having this function logic cannot be put on an independent basis, it cannot at most be more than a branch or division of psychology. But this it is denied to be, and as such it would have the narrowest dimen-

sions. If we could think without the assistance of a system of signs, and if the laws of thought could not be disobeyed directly or indirectly, it is possible that nothing would be requisite beyond such a work as Mansel's *Prolegomena Logica*, and even a large part of that could be dispensed with. But Mansel does not himself maintain that this is logic. On the view above indicated the importance of the psychological prolegomena is certainly not denied, but we clearly draw the line between the prolegomena and the logic itself; it is difficult to see where Mansel can consistently draw such a line.

Mill's view of the proper function of Formal Logic is not quite easy to determine. In his *Examination of Hamilton*, he appears to adopt the Hamiltonian doctrine in one of its forms. Hamilton, he says, indicates two inconsistent views; if, however, Formal Logic is made to deal with strict necessities, it becomes a branch of psychology, and Mill therefore accepts "our author's second view of the province of logic, which makes it a collection of precepts or rules for thinking, grounded on a scientific investigation of the requisites of valid thought". But I think I have already sufficiently shown that if by valid thought we mean thought as thought, no precepts or rules for thinking can possibly be required; if, on the other hand, valid thought means thought as representing facts, it is a material logic that we have. In his *System of Logic*, Mill gives a far more satisfactory account of what Formal Logic is:—"The name seems to be properly applied to all that portion of doctrine which relates to the equivalence of different modes of expression; the rules for determining when assertions in a given form imply or suppose the truth or falsity of other assertions";—but he does not seem to have been fully aware how far this differs from what he implies in the *Examination*. In his actual treatment of such problems as would generally be considered to belong to Formal Logic, Mill is open to the charge that he endeavours to materialise them, as is pointed out in one instance by Prof. Bain in a recent number of MIND. We see this particularly in his rejection of the *Dictum de omni et nullo* as the axiom of the syllogism, and his endeavours to find an axiom which is not an identical proposition. We must point out, however, that Mill himself admits almost in so many words that the portion of his work which is generally considered to correspond to ordinary formal logic is not in reality ordinary formal logic at all. Both the *Dictum* and the *Nota notæ*, he says, "have their value, and their place in Logic. The *Dictum* should be retained as the fundamental axiom of the logic of mere consistency, often called Formal Logic; nor have I ever quarrelled with the use of it in that character, or proposed to banish it from treatises on

Formal Logic. But the other is the proper axiom for the logic of the pursuit of truth by way of Deduction; and the recognition of it can alone show how it is possible that deductive reasoning can be a road to truth." I am doubtful whether the earlier parts of Mill's *Logic* are usually read in this light, and I should myself entirely reject this double view of the theory of syllogistic reasoning. But a full discussion of the question would occupy too much space here, and for my present purpose it is sufficient to point out how important is the above admission as illustrating the danger of old-fashioned Formal Logic falling into neglect.

We arrive then at the conclusion that writers like Whately and De Morgan, who have recognised the fact that Formal Logic should treat of language, have insufficiently realised its subjective side; that in the case of writers like Mansel and Hamilton, what they profess to give is a useful and necessary study, but is in itself a branch of Psychology, whilst there is another branch of investigation, which they have more or less neglected, or at any rate not explicitly recognised; and that Mill speaks inconsistently of the position of Formal Logic in different parts of his writings, and in his actual treatment of the problems usually included under the science is always trammelled by a consideration of Material Logic beyond.

I should give provisionally the following definition. Formal Logic is the science which treats of the nature and conditions of the conformity of symbolical with positive thought, and which is therefore chiefly concerned with the nature and conditions of the conformity of the expression of thought in ordinary language with thought itself. This is the kind of thought-symbolism of which the investigation is likely to be of practical utility, and which also admits of systematic treatment.

In what has preceded, there has perhaps for purposes of argument been undue stress laid on the verbal expression of formal *reasoning;* but according to the above definition names and propositions will have to be treated co-ordinately with the syllogism, and not in mere subordination. We have to investigate the characters of names as representative of concepts, and of propositions as representative of judgments, as well as of syllogisms as representative of reasonings.

We observe that if this view of Formal Logic be adopted, it does not thereby cease to occupy its place in the category of mental sciences. Although treating of language, it is entirely of language as the instrument of thought, as the system of signs, without which it is admitted that conception, judgment and reasoning, in any but their simplest types, are impossible; and especially of language as the instrument of symbolical thought, in which the signs are used more or less independently of what

is signified, and yet must conform to the same laws. Thus Logic treats of language in entire subordination to mental processes and mental laws which have been previously established by Psychology. Language has two important functions. It is, as just described, the instrument of thought, and it is specifically in regard to this function that Logic is concerned with it. But it is also a mode of communicating the thoughts, emotions and volitions of one person to another. Grammar treats of language universally, but with more particular relation to this latter function; and, intimately connected as the two functions of language appear to be, the two sciences may be kept distinct. Grammar is concerned with the different ways of expressing a given mental state, with the structure of sentences, and with the mutual relations and distinctions of words as such; it works with language chiefly from the outside; although mental action and also thought in the strict sense are presupposed, and although it is quite true that Grammar has to discuss many thought-relations, *e.g.*, relations of time, still this is incidental rather than essential, as in the case of Logic. Grammar is not, like Logic, concerned with language and the conditions which it must fulfil as assisting, abbreviating, and even taking the place of actual thought-processes; it is only concerned with the expression of a given and definite thought-product.

A difficulty has indeed been raised as to where the immediate inference of Logic begins and the mere grammatical transformation ends. For example, "All men are mortal, therefore some mortals are men," is a logical immediate inference; but when we pass from "Victoria is the Queen of England" to "Victoria is England's Queen," have we anything that can be called an inference on similar grounds? Prof. Jevons raises this question, but dismisses it as verbal. A more satisfactory solution is given by saying that the answer depends on whether any process of thought is involved in the transformation. In the first case there undoubtedly is; although the concepts are the same, they are viewed in a different relation; the two propositions represent different judgments. But the same is not true in the second case. Here the two sentences represent precisely the same judgment; we have merely two different grammatical forms in which it may be embodied. The one process therefore is logical, the other merely grammatical.

To avoid a misconception that might possibly arise, it may be pointed out that this nominalist view of formal logic does not depend upon the extreme nominalist doctrine which almost implies that concepts are mere words, but only upon the position that language is indispensable for thought; it may be consistently adopted, whilst it is at the same time admitted that

Mansel's own solution of the controversy between nominalism and conceptualism is unexceptionable.

We may observe that if Formal Logic is established on the basis now indicated, it enables us satisfactorily to assign their proper places to the doctrine of the quantification of the predicate and to the more elaborate equational developments of Boole, Jevons and others. We arrive at the conclusion that they should hardly be included in the body of logical exposition, and above all should not be allowed to supersede the ordinary logic, because logic should primarily deal with language as it is. In ordinary language the predicate remains unquantified in affirmative propositions, and the proposition is not regarded as an equation. Propositions therefore with the quantity of the predicate explicitly stated and propositions transformed in a more or less elaborate way into equations should not form our main subject-matter. But whilst general logic should in the main concern itself with the system of signs in common use, still if there are cases with which ordinary language is incapable of dealing, or with which it can deal only with great difficulty, it may be useful to introduce a new system of signs. And this is what I conceive Boole to have done. All this moreover may be a peculiarly useful study and training. But the object of Formal Logic is not so much to obtain results, as to investigate the principles according to which modifications of ordinary language correspond to modifications of thought. We may quote here a remark which Mill makes in reference to De Morgan, but which applies with still greater force to Boole and Jevons :—"The practical use of technical forms of reasoning is to bar out fallacies; but the fallacies which require to be guarded against in ratiocination properly so called, arise from the incautious use of the common forms of language; and the logician must track the fallacy into that territory instead of waiting for it in a territory of his own".

Although, however, the formal logician has in the main to deal with language as it is, he must avoid certain ambiguities of language; a given form of words cannot with him mean sometimes one thing and sometimes another. For example, in ordinary discourse "some" may mean "some at least" or "some, but some at most"; the logician must determine at the outset in which sense he will employ the word. A disjunction in ordinary speech may imply the mutual exclusion of the different elements of the disjunction or it may not; the logician must fix his meaning. If we considered exclusively thought in itself such difficulties could not arise; they depend entirely on the expression of thought. The fact that they cannot help arising is itself a strong argument in favour of the general view of Formal Logic here taken.

We may briefly touch here on the relation between Formal Logic and Algebra. Logic investigates the principles according to which thought-symbolism in general must be manipulated in order that it may maintain a correspondence with thought itself. Algebra investigates the principles according to which thought-symbolism of a particular kind must be manipulated in order that it may maintain a correspondence with thought itself. It is just as impossible to make a purely subjective mistake in working out an algebraical equation as it is to make a purely subjective mistake in formal reasoning, and actual mistakes in algebraical reasoning are explicable in precisely the same way as formal fallacies; we have used a system of signs without fully realising their meaning at each step. The distinction between the two sciences stated generally is that the thought expression with which Logic deals is that of everyday language, and it deals rather with qualitative than with quantitative thought; whilst Algebra takes a special technical thought-expression and is distinctly quantitative. Algebra might be explicitly based on the mental principles which it involves, and in a really philosophical treatment of the science, this should be done. In any case, however, this would form an infinitesimal part of the science on account of the infinity of its subsequent developments both in number and complexity. In Algebra moreover we seek results rather than to investigate principles, whilst the reverse is the case in Logic. For these reasons perhaps the examination of the foundation of algebraical reasoning is generally relegated to Logic; and understanding Logic in a wide sense, we may accept this position for it. Formal Logic may, however, cover a narrower range as above indicated, and concern itself exclusively with the kind of thought-expression that is afforded by ordinary language.

The exact relation between Formal Logic and Material Logic remains to be very briefly indicated. The conditions of knowledge may be said to be threefold, and to lie, first, in thought itself; secondly, in language as the instrument of thought; thirdly, in things. The investigation of these conditions respectively gives us, first, our psychological or metaphysical prolegomena; secondly, Formal Logic; thirdly, Material Logic. If we are to survey the whole field of the conditions and criteria of knowledge, we must certainly include under our first head the metaphysical inquiry whether we possess any intuitive knowledge, and if so what are the conditions and criteria of its validity. So much of metaphysics has indeed been actually included in the treatises of logicians of different schools: *e.g.*, Mill's chapters on Axioms and the Universal Postulate in his *Logic* are distinctly metaphysical, and the same may be said of much of

Mansel's *Prolegomena Logica*. A complete logical training will therefore include, first a Psychological investigation of the laws and processes of thought; secondly, the branch of Metaphysics known as Epistemology; thirdly, Formal Logic with its developments; and, lastly, Material Logic.

Of these, Material Logic alone is to be called an objective science, and this is a distinction which it is important not to lose sight of. Mr. Herbert Spencer distinguishes between the science of Logic and an account of the process of Reasoning, the former formulating the most general laws of correlation among existences considered as objective, and the latter the most general laws of correlation among the ideas corresponding to these existences; but whilst fully recognising the value of this distinction, especially from Mr. Spencer's own psychological standpoint, I think that Formal Logic is still left on one side, not falling under either of these heads. Mr. Spencer probably means explicitly to make even purely Formal Logic an objective science, and on two grounds. First, in dealing with the problems of Formal Logic we are unquestionably contemplating necessary objective relations; we could, for example, teach a child such a logical truth as that expressed in the quantified syllogism, that if most Bs are Cs and most Bs are As then some As are Cs, by means of marbles. It may be admitted that they are necessary objective relations, but the logician does not treat them merely as such, but as subjective relations having a certainty and an authority which as purely objective relations they could not have. Thus in the case supposed, by means of the marbles considered purely as such, we could only teach the child that some As are Cs in this particular instance; but something more than that is required. The subjective correlations may have had ultimately an objective origin as maintained by Mr. Spencer, but that is a psychological question beyond our present concern; the principles of Formal Logic are fundamentally dealt with by it as having a *subjective* necessity, although the assumption may be involved that at any rate so far as the laws of thought are concerned what is necessary subjectively is also necessary objectively. Mr. Spencer argues from the analogy of mathematics, but it may be doubted whether mathematics should be considered a purely objective science. Secondly, "the clearest proof," says Mr. Spencer, "that relations among objective existences form the subject-matter of Logic is yielded by the mechanical performance of logical inference," as in Prof. Jevons's logical machine. But although the performance of logical inference is in this case mechanical, we must remember that the machine has been so prepared as to give only such results as are subjectively valid; although the results are

objectively obtained, they are clearly not objectively justified, at any rate so far as the machine is concerned. I have no doubt that a machine could be so constructed as uniformly to give results neither objectively nor subjectively valid.

J. N. KEYNES.

V. JOHN STUART MILL (II.)

HAVING no more documents until 1830, I propose to make a short critical review of Mill's writings and doings in the interval, upon the basis of the information supplied by himself. I will first endeavour, for the sake of clearness, to extract the chronological sequence of the years from 1820 to 1830, which, from his plan of writing, is not very easy to get hold of.

1821. Returns from France (July). Beginning of Psychological studies. Condillac.

1822. Reads the History of the French Revolution; inflamed with the subject. Studies Law with Austin. Dumont's Bentham excites him to a pitch of enthusiasm. Locke, Helvetius, Hartley, Berkeley, Hume, Reid, Dugald Stewart, Brown on Cause and Effect, Bentham's Analysis of Natural Religion. Began intimacy with Grote. Charles Austin. First published writings in the Traveller newspaper.

1823. Utilitarian Society at Bentham's house: Tooke, Ellis, and Graham. Appointment to India House (May 21). Letters to the Morning Chronicle on the Richard Carlile prosecutions (Jan. and Feb.). Frequent contributions throughout the year to the Chronicle and Traveller. Westminster Review projected. Reads up the Edinburgh Review for his father's attack upon it in the first number of the Westminster.

1824. First number of the Westminster appears (March). Contributes to the second number on the Edinburgh Review; to the third on Religious Persecution (?) and War Expenditure; to the fourth on Hume's Misrepresentations in his History.

1825. Principal occupation, editing Bentham's book on Evidence. Starting of Parliamentary History and Review: writes the article on the Catholic Disabilities; also on the Commercial Crisis and Currency and the Reciprocity Principle in Commerce. Learnt German. Began morning-readings in the Society at Grote's house in Threadneedle Street. Went with some others to the debates of the Owenites' Co-operative Society; founding of the Speculative Debating Society. In the Westminster, wrote on the Political Economy of the Quarterly, on the Law of Libel (?), and on the Game Laws (?) (number for Jan. 1826).

1826. Utilitarian Society ceases, and readings at Grote's continue. Speculative Society flourishing. Reviews, for the Westminster, Mignet's French Revolution, and Sismondi's History of France; writes two articles on the Corn Laws; replies to the Quarterly on Greek Courts of Justice. Beginning of "mental crisis".

1827. Speculative Society. Readings at Grote's (turned now to Logic). Articles in the Westminster; review of Goodwin's Commonwealth (?); of Whately's Logic (in number for Jan. 1828).

1828. Speculative Society. Readings at Grote's, on his father's Analysis. Last article in Westminster—Scott's Life of Napoleon. Acquaintance with Maurice and Sterling. Read Wordsworth for the first time. (At some later return of his dejection, year not stated, he was oppressed with the problem of philosophical necessity, and found the solution that he afterwards expounded in the Logic.) Is promoted from being a clerk to be Assistant Examiner in his office. Attended John Austin's Lectures on Jurisprudence in University College.

1829. Withdrew from Speculative Debating Society. Macaulay's attack on his father's Essay on Government produces a change in his views of the Logic of Politics. Attended Austin's second Course of Lectures.

With regard to these nine years, I will first remark on his articles in the Westminster Review. He says he contributed thirteen, of which he specifies only three: of the whole, he says generally, they were reviews of books on history and political economy, or discussions on special political topics, as corn-laws, game-laws, law of libel. I am able to identify the greater number of them.

His first contribution is the article in the second number, on the Edinburgh Review, which continued the attack made by his father in the first number; he puts this down as "of little or no value," although to himself a most useful exercise in composition; it is, nevertheless, in respect of his biography an interesting study. No doubt the opinions are for the most part his father's, though independently and freshly illustrated: the demonstration of the truckling of the Edinburgh Review to sentiment and popularity; the onslaught against lubricated phrases; the defectiveness of the current morality as reflected in the Review; the denunciation of the pandering to our national egotism:—all these were his father *redivivus;* yet we may see the beginnings of his own independent start, more especially in the opinions with regard to women, and the morality of sex.

In the third number (July, 1824), he has an article on War Expenditure, the review of a pamphlet by William Blake on the recent fluctuations of prices. In the fourth number (Oct. 1824), he reviews at length a work on English History, by George Brodie, which is especially devoted to Hume's misrepresentations. He enters fully into the exposure of Hume's disingenuous artifices; and at the present time when Hume's metaphysical reputation is so resplendent, his moral obliquity as a historian should not be glossed over. No doubt his Toryism was his shelter from the odium of his scepticism. Mill says of him: —"Hume possessed powers of a very high order; but regard for truth formed no part of his character. He reasoned with surprising acuteness; but the object of his reasonings was not to attain truth, but to show that it was unattainable. His mind, too, was completely enslaved by a taste for literature; not those kinds of literature which teach mankind to know the causes of their happiness and misery, that they may seek the one and avoid the other; but that literature which without regard for truth or utility, seeks only to excite emotion."

In the fifth number (Jan. 1825), he assails the Quarterly for its review of the Essay on Political Economy in the supplement to the Encyclopædia Britannica. In the sixth number (Ap. 1825), there is a long article on the Law of Libel, the sequel to a previous article on Religious Prosecutions (No. 3), but I have no means of proving them to be his, except that this is one of the topics that he specifies. For the fourth volume, Nos. seven and eight, I have no clue. The ninth number (Jan. 1826) opens with a powerfully-written paper on the Game Laws, which I believe to be his. In the tenth number (April, 1826), there is a short review by him of Mignet's History of the French Revolution, which is principally occupied with pointing out the merits of the book. I have heard him recommend Mignet as the best for giving the story of the Revolution. He reserves all discussions of the subject; "it being our intention, at no distant period, to treat of that subject at greater length". In the eleventh number (July, 1826), there is a searching discussion of the merits of the Age of Chivalry, on the basis of Sismondi's History of France, and Dulaure's History of Paris; which is not unlikely to be Mill's. The Corn-Laws is one of his subjects, and on this there is an article of 30 pages in the twelfth number (Oct. 1826). In the following number (Jan. 1827), there is a second article, referring to Mr. Canning's measure recently brought forward (1826). The concluding article of this number I believe to be Mill's; it deals with a recent article in the Quarterly, on Greek Courts of Justice, and is in his happiest vein. It retorts cleverly

upon the exaggerations of the Quarterly, by finding in the English legal practice abuses equal to the worst that the reviewer discovers in the Athenian courts. In the sixteenth number, there is a review of Goodwin's History of the Commonwealth, which seems to follow up the review of Hume.

The article on Whately in Jan. 1828, was the outcome of the discussions in Grote's house the previous year. It is a landmark not merely in the history of his own mind, but in the history of Logic. His discussion of the utility of Logic, at a time when Syllogism was the body and essence of it, hits the strongest part of the case better than the famous chapter on the Functions of the Syllogism; I mean the analysing of an argument, with a view to isolating the attention on the parts. The discussion of the Predicables is an improvement upon Whately. He even praises, although he does not quite agree with, Whately's attempt to identify Induction with Syllogism, and gives him credit for illustrating, but not for solving, the difficulty of our assenting to general propositions without seeing all that they involve. His view of the *desiderata* of Logic is thus expressed:—"A large portion of the philosophy of general Terms still remains undiscovered; the philosophical analysis of Predication, the explanation of what is the immediate object of belief when we assent to a proposition, is yet to be performed; and, though the important assistance rendered by general language, not only in what are termed the exact sciences, but even in the discovery of physical facts, is known and admitted, the nature of the means by which it performs this service is a problem still to a great extent unsolved." On the whole, it cannot be said that he had, as yet, made much progress in Logic, even with the assistance of the debates in Threadneedle Street. The real advances apparently remained to be worked out by his own unassisted strength during the next twelve years. I may remark, in conclusion, that I think he greatly over-rates the value of Whately's book:—"The masterly sketch which he has given of the whole science in the analytical form, previously to entering upon a more detailed exposition of it in the synthetical order, constitutes one of the greatest *merits* of the volume, as an elementary work." If, instead of merits, defects were substituted, the sentence would be, in my judgment, very near the truth. The result of the arrangement was singularly confusing to myself, when I first read the book; and the testimony of all subsequent writers on Logic must be held as against it, for not one, to my knowledge, has ever repeated it. It grew out of the very laudable desire to approach an abstract subject by a concrete introduction; but the conditions of success in that endeavour have scarcely yet been realised by any one of the many that have made it. At a later

period, Grote reclaimed strongly against Mill's setting Whately above Hamilton.

The final article, in April, 1828, is the review of Scott's Life of Napoleon. It extends to sixty pages, and is in every way a masterpiece. He had now made a thorough study of the French Revolution, and had formed the design to be himself its historian. He does ample justice to Scott's genius as a narrator, and to a certain amount of impartiality founded on his naturally tolerant disposition, and his aim at winning the good word of everybody. But the exposure of the many and deep-seated defects of the work, both in facts and in reasonings, is complete, and would have marred the fame of any other writer. In point of execution, it is not unworthy to be compared with the Sedgwick and Whewell articles.

I consider some observations called for on the mental crisis of 1826. He had then completed his twentieth year. The subjective description given of his state must be accepted as complete. But the occurrence is treated as purely spiritual or mental; the physical counterpart being wholly omitted; the only expression used, "a dull state of nerves *such as everybody is liable to*," is merely to help out the description on the mental side. Nothing could be more characteristic of the man. There was one thing he never would allow, which was that work could be pushed to the point of being injurious to either body or mind. That the dejection so feelingly depicted was due to physical causes, and that the chief of these causes was over-working the brain, may I think be certified beyond all reasonable doubt. We know well enough what amount of mental strain the human constitution, when at its very best, has been found to endure; and I am unable to produce an instance of a man going through as much as Mill did before twenty, and yet living a healthy life of seventy years. The account of his labours in the previous year alone, 1825, (a lad of 19) is enough to account for all that he underwent in the years immediately following. Moreover, it was too early to have exhausted his whole interest in life, even supposing that he had drawn somewhat exclusively upon the side of activity and reforming zeal. Fifteen or twenty years later was soon enough to re-adjust his scheme of enjoyment, by delicate choice and variation of stimulants, by the cultivation of poetry and passive susceptibility. It so happened that, on the present occcasion, his morbid symptoms were purely subjective; there was no apparent derangement in any bodily organ. Judging, however, from what followed a few years later, we can plainly see in this "mental crisis" the beginning of the maladies that oppressed the second half of his life in a way that could not be mistaken. He got over the

attack apparently in two or three years, with powers of enjoyment considerably impaired. That spirit left him for a time, but returned with another still worse.

Preparatory to the additional elucidation of his life and work from 1830 to 1840, I have constructed the following chronological outline:—

1830. Put on paper ideas on Logical distinctions among Terms, and the Import of Propositions. First acquaintance with the French Philosophy of History: St. Simonians; Comte. Went to Paris after Revolution of July. Began to write steadily on French Politics (Examiner).

1831. Writing in Examiner: essays on the Spirit of the Age.[1] Essays on Unsettled Questions in Political Economy (1830 and 1831, not published till long after). Resumed Logical Axioms and theory of the Syllogism. Tide of the Reform Agitation. First introduction to Mrs. Taylor.

1832. Essays in Tait's Magazine; and in the Jurist. Papers on Corporation and Church Property, and the Currency Juggle.

1833. Monthly Repository:—Review of Alison's History; Thoughts on Poetry; Analysis of Platonic Dialogues. In Paris in autumn, and saw Carrel for the first time.

1834. London Review projected; Molesworth to be proprietor. No special work recorded.

1835. Read De Tocqueville's Democracy in America. London Review:—Article on Sedgwick.

[1] On looking over the file of the Examiner, to see the drift of these Essays, which I expected to turn upon social questions, more than politics, I find that they all point in the direction of his *Representative Government*, in so far as they contain anything constructive. There is a long *exordium* on the character of the present age, as an age of *transition*, with all the consequences growing out of that—unsettlement of existing institutions, in the absence of principles to found new ones upon. "Worldly power must pass from the hands of the stationary part of mankind unto those of the progressive part." "There must be a moral and social revolution which shall indeed take away no men's lives or property, but which shall leave to no man one fraction of unearned distinction or unearned importance." "For mankind to change their institutions while their minds are unsettled, without fixed principles, is indeed a fearful thing. But a bad way is often the best, to get out of a bad position. Let us place our trust in the future, not in the wisdom of mankind, but in something far surer, the force of circumstances which makes man see that, when it is near at hand, which they could not foresee when at a distance." Discussing the way to secure government by the fittest, he considers the time is gone by when wealth is the criterion. Age has more to say for itself, excepting in a time of transition. He considers at some length the sources of moral influence on society. The last of the series (29th May) concludes—"I shall resume my subject as early as possible after the passing of the Reform Bill;" the agitation then going on being used as the climax of the proof that the time is one of transition.

1836. His father's death. Illness in the head. Three months' leave of absence: tour in Switzerland and Italy. London and Westminster Review:—Civilisation (April). Is promoted to be second Assistant in his office (salary £800), and again to be first Assistant (£1200).

1837. London and Westminster Review:—Aphorisms (Jan).; Armand Carrel (Oct).

1838. London and Westminster Review:—A Prophecy (Jan.). Alfred de Vigny (April). Bentham (Aug.).

1839. Illness. Six months' leave of absence; travelled in Italy.

1840. Lond. and West.:—Coleridge (March). Edinburgh Review:—De Tocqueville's Democracy (Oct). With Henry at Falmouth, in his last illness.

He tells us how he was excited by the French Revolution of 1830, and visited Paris in consequence. He wrote on the 13th August a long letter to his father on the state of parties. He begins—"I have had some conversation with M. Say, and a great deal with Adolphe d' Eichthal and Victor Lanjuinais, and I have been a very assiduous reader of all the newspapers since I arrived." "At present, if I were to look only at the cowardice and imbecility of the existing generation of public men, with scarcely a single exception, I should expect very little good; but when I consider the spirit and intelligence of the young men and of the people, the immense influence of the journals, and the strength of the public voice, I am encouraged to hope that as there has been an excellent revolution without leaders, leaders will not be required in order to establish a good government." He then goes on to give a detailed account of how the revolution was accomplished—the flinching of the generals of the army, the cowardice and meanness of Dupin above everybody. He has the lowest opinion of the ministry, not a Radical among them except Dupont de l'Eure; all mere place-hunters. Thiers at the meeting for organising the resistance showed great weakness and pusillanimity. (I heard him long afterwards say he detested Thiers.) Of the new measures he praises most the lowering of the age-qualification to the Chamber from 40 to 30; he has seen no one that attaches due importance to this change. "I am going to the Chamber of Deputies to-morrow with Mr Austin, and next week, I am to be introduced to the Society of 'Aide-toi,' where I am to be brought in contact with almost all the best of the young men, and there are few besides that I should at all care to be acquainted with." "I have heard an immense number of the most affecting instances of the virtue and good sense of the common people." These last observations are

thoroughly characteristic. Young men and *ouvriers* were Mill's hopes.

We learn from himself that he wrote the articles in the Examiner on French Politics, for several years. Even when English politics became all-engrossing, he still maintained his interest and fond hopes in the future of France.

His first bad illness was ten years after the beginning of the period of dejection in 1826. In 1836, his thirtieth year, he was seized with on obstinate derangement of the brain. Among the external symptoms were involuntary nervous twitchings in the face. Of the inner consciousness corresponding, we have suggestive indications in the family letters of the time. The earliest allusion to his state is contained in his father's first letter to James in India. "John is still in a rather pining way; though, as he does not choose to tell the cause of his pining, he leaves other people to their conjectures." This shows that he had ceased to give his father his confidence in bodily as well as in his mental matters. His medical adviser sent him in the first instance to Brighton. A letter from thence addressed to Henry at home—date not given, but probably near the time of his father's letter—says:—"There seems to be a change considerably for the better in my bodily state within the last three days; whether it will last, I cannot yet tell; nor do I know whether the place has contributed towards it, as the more genial weather of yesterday and to-day is probably the chief cause." He then says that he will continue his stay if the improvement goes on, but is reluctant to be long absent, partly on account of his father's illness and partly on account of his tutoring "Mary and George". He trusts to Henry to keep him informed on the state of matters, and if he can be of any use to his father, he will forego the present advantages and trust to getting well as the summer advances. In a letter, dated 7th May, from Henry to James in India, occurs a further allusion. "There is a new visitor added to the list of young men who come here, a Dr. King, whom John consults about his health" (he afterwards married the eldest daughter, but soon left her a widow). John "is certainly ill, but nothing, every one assures us, to be frightening himself about". The father's death occurred soon after (23rd June), and on the 29th July, Henry wrote:—"We are all well in health, except John and myself—John from his old complaint." "George and I are going to the continent with John, who has got leave of absence from the India House for three months, on plea of ill-health." In this letter is a postscript—"John has honoured me with the present of a watch that was given to my father by Mr. Ricardo; so you see it is trebly valuable to me." This

reminds us of John's loss of his own watch; to which I may add that to the end of his life he had only an ordinary silver watch.

Next day, the 30th, the party left London. They travelled in France and Switzerland for a month, and the two boys took up their abode at Lausanne, while John went on to Italy. The expressions as to his state are still (4th Sept.) very discouraging: —"His head is most obstinate; those same disagreeable sensations still, which he has tried so many ways to get rid of, are plaguing him." Three weeks later Henry says:—"John wrote to us a very desponding letter, saying that if he had to go back without getting well, he could not again go to the India House, but must throw it up, and try if a year or two of leisure would do anything." The same letter incidentally notices that Mrs. Taylor joined the party, and accompanied John in his tour, while the young people remained at Lausanne. We have no farther references to this illness; he got round in time, but he retained to the end of his life an almost ceaseless spasmodic twitching over one eye. His renewed capability for work is shown by the dates of his writings immediately subsequent. He had many illnesses afterwards, but I do not know that anyone was so markedly an affection of the brain as on this occasion.

Two years and a-half later, in the beginning of 1839, he went to Italy, and was away six months on sick leave. The expressions that I shall quote from the correspondence are my only means of knowing the nature and extent of his malady. On the 17th Jan., Henry writes:—"As to John's health, none of us believe that it is anything very serious; our means of judging are his looks when he was here, and also what we have heard from Dr. Arnott. We are told, however, that his sending him away is because his pains in the chest, which are the symptoms, make it seem that a winter in Italy just now will afford him sensible and permanent benefit for the whole of his life. . . . That this might have turned to gout." The next letter is one from himself, dated Rome, 11th March. He says:—"I have returned here after passing about three weeks very pleasantly in Naples, and the country about it. I did not for some time get any better, but I think I am now, though very slowly, improving, ever since I left off animal food, and took to living almost entirely on macaroni. I began this experiment about a fortnight ago, and it seems to succeed better than any of the other experiments I have tried." The remainder of the letter describes Naples and neighbourhood—"Pompeii, Baiæ, Pæstum, &c." Ten days later he writes:—"As for me I am going on well

too—not that my health is at all better; but I have gradually got quite reconciled to the idea of returning in much the same state of health as when I left England; it is by care and regimen that I must hope to get well, and if I can only avoid getting worse, I shall have no great reason to complain, as hardly anybody continues after my age (33) to have the same vigorous health they had in early youth. In the meantime it is something to have so good an opportunity of seeing Italy." Again, he writes on the 31st May, from Munich on his way home.—"I am not at all cured, but I cease to care much about it. I am as fit for all my occupations as I was before, and as capable of bodily exertion as I have been of late years—only I have not quite so good a stomach." He then dilates on the pleasures of his Italian tour, to which he added the Tyrol. He returned to his office-work on the 1st July. The only indication of his state is in a letter from Henry:—"John is come back looking tolerably well; he is considerably thinner, however." We infer that his primary affection was in the chest, and to this was added weakness of stomach. In both these organs, he was subject to recurring derangements for the rest of his life.[1]

The London Review, projected in 1834, started in April, 1835. Sir William Molesworth undertook the whole risk; and Mill was to be Editor; although he considered it incompatible with his office to be openly proclaimed in that capacity. His father lent his latest energies to the scheme, and opened the first number with a political article, entitled 'The State of the Nation'—a survey of the situation of public affairs in the beginning of 1835, in his usual style. John Mill's first contribution was the 'Sedgwick' article. I have heard that Sedgwick himself confessed that he had been writing about what he did not understand, but my informant was not himself a Cambridge man. Effective as the article was for its main purpose of defending the Utilitarian Ethics against a sciolist, it always seemed to me rather weak in the Introduction, which consists in putting the question, "For what end do endowed Universities exist," and in answering—"To keep alive philosophy." In his mind, philosophy seemed to mean chiefly advanced views in politics and in ethics; which, of course, came into collision with religious orthodoxy and the received commonplaces of society. Such a view of the functions of a University would not be put forth by any man that had ever resided in a University; and

[1] He took the opportunity of studying Roman History while in Italy; and in Rome itself he read Niebuhr. It was long a design of his to write the philosophy of the rise of the Roman power, but he failed to satisfy himself that he possessed an adequate clue. So late as 1844 or 1845, he was brooding over a review-article on this subject.

this is not the only occasion when Mill dogmatised on Universities in total ignorance of their working.

The second number of the Review is chiefly notable for his father's article on Reform in the Church. It is understood that this article gave a severe shock to the religious public; it was a style of reform that the ordinary churchman could not enter into. The prospects of the Review were said to be very much damaged in consequence. John Mill wrote on Samuel Bailey's Rationale of Political Representation. Bailey's views being in close accordance with his own, he chiefly uses the work as an enforcement of the radical creed. After Bentham and the Mills, no man of their generation was better grounded in logical methods, or more thorough in his method of grappling with political and other questions, than Samuel Bailey.

In the same number, Mill reviews Tennyson's poems. He assigns as his inducement that the only influential organs that had as yet noticed them were Blackwood and the Quarterly Review; on which notices he pronounces a decided and not flattering opinion. He is, accordingly, one of the earliest to mete out justice to Tennyson's powers; and as a critical exercise, as well as a sympathetic appreciation, the article is highly meritorious. In numerous instances besides, Mill was among the first, if not the very first, to welcome a rising genius.

He closes the number with a political article on the measures of the Government for the session, among others, the Irish Church and the Municipal Corporations bills. His text seems to be that the statesmen of the generation are good in destroying, but bad in construction; and he says that the remark applies to all the Whig reforms, and most of all to Lord Brougham's Law reforms.

In the third number, Oct., 1835, Mill reviewed De Tocqueville's book, which had then appeared; the review extending to 45 pages. It was a very full account of the book, with copious extracts, but may be considered as superseded by the article written for the Edinburgh Review in 1840, which is reprinted in the *Dissertations*. The number concludes with a short but energetic review of the Parliamentary session just concluded. It is of the tone and character of all his political writing in those years; a retrospect of recent achievements, with a view of the present position and declaration of the one thing needful for it—a leader. He bitterly complains of the absence of a man of action, and asks, "Why does not Mr Grote exert himself? There is not a man in Parliament who *could* do so much, or who is more thoroughly the people's friend." "O'Connell is the only figure that stands erect." The Liberal Press is too much given to truckling to the Ministry. The bull must be taken by the

horns; the Tories must be awakened by the apparition of a HOUSE OF LORDS AMENDMENT BILL.

In the fourth number, January, 1836, he had an article entitled 'State of Society in America,' reviewing a number of books of American Travels, and following up the article on De Tocqueville. It is occupied with an attempt to connect the features of American Society with the industrial position and political constitution of the country. It may be called one of his minor sociological studies.

The fifth number is the first of the union of the 'London' with the old 'Westminster,' hereafter called 'The London and Westminster'. It appeared in April, 1836. Mill contributes to it his article on Civilisation, contained in the *Dissertations*, and a short political article on the State of Politics in 1836. I never felt quite satisfied with the article on Civilisation. The definition given at the outset seems inadequate; and the remainder of the article is principally one of his many attacks on the vicious tendencies of the time. He regards as consequences of our civilisation, the decay of individual energy, the weakening of the influence of superior minds, the growth of *charlatanerie*, and the diminished efficacy of public opinion, and insists on some remedies for the evils; winding up with an attack on the Universities. To my mind these topics should have been detached from any theory of Civilisation, or any attempt to extol the past at the cost of the present. The political article is a survey of the measures pending in Parliament. He is very much excited, as his father was, about the spoiling of the country with unnecessary railways. There is the usual complaint of the torpidity of Radicals, Joseph Hume being his only exception.

For the July number, he contributes only the opening article, which is a political survey, on the text of Sir John Walsh's Contemporary History. It retraces the history of Reform, and its consequences, and discourses on the relative merits of Tories, Whigs, and Radicals, with the usual complaints. Knowing the state of his health this year, the occurrence of his father's death, and his three months' absence, we are surprised to find that he can contribute to the October number; of which the first article is his—on the Definition and Method of Political Economy. Doubtless this had been lying by him, and had been brought out to fill a gap.

In January, 1837, the political article is by Sir William Molesworth (The Terms of Alliance between Radicals and Whigs). Mill contributes only a short paper on an anonymous work of Arthur Helps, I believe his first publication—'Thoughts in the Cloister and the Crowd'. This was another occasion when he displayed his passion for discerning and

encouraging the first indications of talent and genius. I remember when I first came to London, this was one of the books he lent me; and we agreed that, in point of thinking power, Helps had not fulfilled the promise of that little work.

For April, 1837, he contributes a review of Fonblanque's England under Seven Administrations; which would be easy work. The article is laudatory enough, but iterates the author's standing complaint against all the journals, namely, too great subserviency to the ministry in power. The political summary in the number is again by Molesworth. Carlyle contributes a short paper on the French Revolution, under an editorial *caveat.*

In July appears the review of Carlyle's French Revolution, which Mill considers to have been one of his grand strokes in the Review. Carlyle's reputation was as yet hanging very dubious. The effect to be produced by the *French Revolution* was extremely uncertain. Mill was now well acquainted with Carlyle, and knew how his peculiarities affected people, and how easily a prejudice might be created that would retard his fame for years. A judicious boldness was the only chance, and the article opens thus:—

'This is not so much a history, as an epic poem; and notwithstanding, or even in consequence of this, the truest of histories. It is the history of the French Revolution, and the poetry of it, both in one; and, on the whole, no work of greater genius, either historical or poetical, has been produced in this country for many years.'

Nothing could be better calculated to disarm prejudice against the book than the conduct of this article throughout; it is indeed a masterpiece of pleading, and deserved to be successful, as it was. A little later, Mill admitted into the Review an article on Carlyle by John Sterling, which was a still more complete exhibition of Carlyle, and is probably yet one of the best criticisms that he has ever received. Still, when Carlyle, in his life of Sterling, refers to that article as the first marked recognition he had received in the press, he was unfairly oblivious to what Mill's article had previously done for him.

In this number the political article has to advert to the death of King William, and the events that follow. The Radicalism is as strong as ever; but the signature (E) is not Mill's, and I do not know the author.

The next number is October, 1837. The opening article is the political one, and is by Mill. Its text is the opening of the new Parliament of 1837. It is, if possible, more energetic and outspoken than ever. It addresses first the Ministers, and demands of them the Ballot, as a special measure, and a number of other reforms, the Church included. It addresses the Radicals in Parlia-

ment in the usual strain. It hits the Tories very hard for their disingenuous dealing on the new Poor Law at the elections, and demonstrates that not they, but the Radicals, were the real upholders of the rights of property. The incitements to action are redoubled, as the power of the Liberals has diminished. I do not know of any compositions that better deserve to be compared with the Phillipics of Demosthenes than Mill's political onslaughts in those years.

This number contained also the article on Armand Carrel. The best part of it is, perhaps, the history of French politics from the restoration of the Bourbons, on which he was thoroughly informed. The personality of Carrel is sketched chiefly from Carrel's biographers, to which he adds the impressions made by Carrel on himself. The distinguishing aim of Carrel's political life is remarkable for its common sense and intelligibility—to mitigate the mutual hostility of parties as a preparation for a constitutional *régime*. In the summing up of Carrel's personality Mill displays himself:—"Like all persons of fine faculties, *he carried the faculties with him into the smallest things;* and did not disdain to excel, being qualified to do so, in those things which are great only to little men." This doctrine, I conceive, was held by Mill to an erroneous excess; the counter-doctrine of the limitation of the human faculties he never fully allowed for. He believed in *large* minds without any qualification, and saw very little incompatibility between the most opposite gifts.

In January, 1838, appeared the first 'Canada and Lord Durham' article. In the *Autobiography* he celebrates the influence exerted by this and his subsequent article on the return of Lord Durham, and believes that they were a turning-point not merely in the settlement of Canada, but in the future of all our British colonies. Besides writing these articles, Mill exercised great personal influence on Lord Durham's Canadian measures, chiefly through his secretary, Charles Buller, who was always very open to Mill's suggestions. The present article apologises for not reviewing the home political situation at large, because "a question has arisen, which suspends all united action among Radicals". "On this most grievous subject, we shall, in the course of this article, declare our whole opinion." He yet, however, finds it necessary first to denounce in fitting terms Lord John Russell's declaration of hostility to all reform on the first night of the session. The discussion of the Canadian problem is in his very best style, and is as well worth reading even now as any of his reprinted papers.

The number for April, this year, opens with one of his literary articles, reproduced in the *Dissertations*—'Alfred de Vigny'. This article is his latest and most highly elaborated attempt to

philosophise upon Literature and Poetry. The 'Thoughts on Poetry' is his only other paper that he has thought worth preserving. The reviews of Tennyson and Carlyle's *French Revolution* are replete with just criticism, but do not reach the height of philosophical explanation. In his philosophy of style, there are many good points, but, as I conceive, some serious omissions. I doubt if he gave enough thought to the subject. The earlier part of the 'de Vigny' article on the influence exerted on Poetry by Political changes, such as the French Revolution, is I think very happily expressed; and is quite equal to any other similar dissertations by our best historians and critics. It is when he comes to state the essential quality of the poetic genius or temperament, that I think his view defective. In the first place, he puts too much stress on the Emotional quality, and too little on the Intellectual. In the second place, he is wrong in identifying the poet intellectually with the philosopher or thinker: he regards genius, whether in poetry or in philosophy, as the gift of seeing truths at a greater depth than the world can penetrate. On the former of these two heads he accepts De Vigny's emotional delineation—"the thrill from beauty, grandeur, and harmony, the infinite pity for mankind"—as the tests, or some of the tests, of the poetic nature; but he takes no direct notice of the genius of expression, the constructive or creative faculty, without which emotion will never make a poet, and with which the grandest poetry may be produced on a very slight emotional basis. To criticise Shelley without adducing his purely intellectual force, displayed in endless resources of language, is to place the superstructure of poetry on a false foundation. Shakespeare, in any view of him, was ten parts intellect for one emotion; and his intellect did not, so far as I am aware, see truths at a greater depth than the world could penetrate. Mill inherited his father's disposition to think Shakespeare over-rated; which, to say the least, was unfortunate when he came to theorise on poetry at large.

In August, appeared the review of Bentham, which I will advert to presently.

The next number is December, 1838. It closes with Mill's second article on Canada—'Lord Durham's Return'—vindicating his policy point by point, in a way that only Mill could have done. It concludes—"If this be failure, failure is but the second degree of success; the first and highest degree may be yet to come".

The succeeding number appears in April, 1839, and contains the last, and in one view the greatest, of Mill's political series. Liberalism in Parliament is now at its lowest ebb: and only some new and grand expedient can be of any avail. Departing

from his old vein of criticism of Whigs and Radicals, he plans the 'Reorganisation of the Reform Party,' by an inquiry into the origin and foundations of the two great parties in the State. He inquires who, by position and circumstances, are *natural* Radicals, and who are natural Tories; who are interested in progress, and who in things as they are. I strongly recommend this article as a piece of admirable political philosophy, and I do not know any reason for his not preserving it, except that it is so closely connected with the passing politics of the time. At all events, it is the farewell to his ten-years' political agitation. As this was the year of his second bad illness, I presume the article was written in the end of 1838, in the midst of great suffering.

After six months' interval, the next number appeared October, 1839. It contained no article of Mill's: he had been abroad the first half of the year. The number is otherwise notable for Sterling's article on Carlyle, and Robertson's on Cromwell. In March, 1840, was published the last number under Mill's proprietorship. It opened with his 'Coleridge' article.

The Bentham article both stands alone as an appreciation of Bentham's work, and also forms one member of a correlative couple with the disquisition on Coleridge. No one possessed the qualifications of Mill for setting forth Bentham's merits and defects: we wish that he had made still more use of his means in depicting Bentham's personality. But in the mode of dealing with the defective side of Bentham, he undoubtedly gave offence to the Benthamite circle. He admits (in the *Autobiography*) that it was too soon to bring forward the faults of Bentham; and, looking at the article now, we may be allowed to say that a little more explanation is wanted on various points; as, for example, Bentham's deficiency in Imagination, his omission of high motives in his Springs of Action, and his aversion to the phrases 'good and bad *taste*'. It is apparent that Mill is criticising him from a point of view not taken by any other of Bentham's friends and disciples. When we turn to the 'Coleridge' article, we find the more explicit statement of his position, as between the great rival schools. There we have a laboured introduction to show the necessity of studying the conflicting modes of thought on all questions; we are told that, as partisans of any one side, we see only part of the truth, and must learn from our opponents the other part. Following out this text, Mill endeavours to assign the truth that there is in Conservatism, when purified by Coleridge and raised to a coherent system, or a philosophy. It is needless to advert to the detailed illustration, but the conclusion is open to remark. A Conservative philosophy may be, he says, an absurdity, but it is cal-

culated to drive out still worse absurdities. To cut the matter short, he hopes from it, not the conversion of Conservatives into Liberals, but the adoption of "one liberal opinion after another as a part of Conservatism itself". Surely this is spreading the snare in the sight of the bird. We may ask whether, after forty years' trial, the Conservative philosophy of Coleridge has really borne such fruits; or whether the adoption of Liberal opinions by Conservatives has had anything to do with philosophical consistency. Did Mr. Gladstone's conversion follow, in any degree, from Coleridge's philosophy?

Be this as it may, these two articles made a temporary alienation between Mill and his old associates, and planted in their minds a painful misgiving as to his adherence to their principles or to any principles. There is, in the *Logic*, an extract from the 'Coleridge' article, on the essential conditions of stability in any society. One of these conditions is that there be something that is settled, and *not to be called in question*. Grote never ceased to convert this remark into an expression for the standing intolerance of society towards unpopular opinions.

From these two articles it is a natural transition to remark generally upon his manner of conducting the Review from first to last. He aimed at a wider comprehension than had ever been allowed before in any periodical representing a sect. He sought out fresh and vigorous thinking, and did not expect a literal adherence to his own opinions. The Review abounds in editorial *caveats*, attached to the articles: his principle of seeing partial truth in opposite sides was carried out in this form. He respected real ability when combined with sincerity, and, as an editor, he never refused a reading to an offered contribution; in fact, he delighted in the perusal of young authors' essays.

It was a noble experiment to endeavour to combine opposites and to maintain a perpetual attitude of sympathy with hostile opinions. A dissertation would be well expended in inquiring into its results. For the present, I remark that, as real opposition cannot be smoothed down, we must still go on the old track of counter-argumentation; while every honest truth-seeker endeavours to do justice to the case of an opponent. The watchword in those days of the Review, was—Sympathise in order to learn. That doctrine, preached by Goethe and echoed by Carlyle, was in everbody's mouth, and had its fling.

Mill's account of the management of the Review, first as held by Molesworth, and afterwards by himself, leaves uncertainties on various interesting points. He was at first sole editor, it appears, without being the avowed editor; he does not

say what this exactly meant. In point of fact, he rather supervised than edited the Review. The first acting editor, as I am informed, was Mr. Thomas Falconer, a barrister, and now a county court judge; Mill guiding him, but not being the active correspondent with contributors. During Mill's absence in the autumn of 1836, Mr. Falconer did all the editing uncontrolled, and, in the exercise of his editorial discretion, rejected Carlyle's article on Mirabeau, which Mill had previously approved of; the rejection was afterwards reversed by Mill, who printed the article in the following January (1837). Although not the impression left by the narrative in the *Autobiography*, I am constrained by the facts within my knowledge to believe that Robertson's period as assistant-editor must have begun in the summer of 1837; and Molesworth's retirement could not have been till the end of the year. This affects our estimate of the numbers issued at Mill's sole risk. Molesworth may have borne the cost of ten or eleven numbers, which would leave Mill seven or eight, of the eighteen in all. Molesworth expended, no doubt, a considerable sum in starting it; and Mill must have been both very sanguine, and also very much bent upon propagating his views in politics, philosophy and literature, to take the whole risk upon himself. He paid his sub-editor, and also sixteen pounds a sheet to the contributors that took payment. On these eight numbers he must have lost considerably. I can form some estimate of the loss from knowing what Hickson paid to contributors, when he took over the Review, and worked it on the plan of making it pay its own expenses, he giving his labour gratis.[1]

[1] I was well acquainted with Mill's sub-editor, John Robertson, now dead. He was a fellow-townsman, and was the medium of my introduction to Mill. I had, for several years, abundant opportunities of conversing with him, and learnt a great deal about Mill during our intercourse. But he was very reticent about his own relations with Mill; he never told me at least, what was his pecuniary allowance as sub-editor; nor did he explain how they worked together in the matter of editing; his habit was to style himself Editor, and to seem to take the sole management. He has not left behind him any record of the connexion between him and Mill; while I know enough of his history to make me doubt whether it commenced in 1836. Those that knew Robertson were not a little taken aback by Mill's character of him:—'A young Scotchman, who had some ability and information, much industry, and an active scheming head, full of devices for making the Review more saleable, &c.' I remember on one occasion when Mr. Disraeli, in the House of Commons, quoted Mill as an authority on some economical view, Lord John Russell, in reply, spoke of him as a *learned author;* the next time I met him, he accosted me with his humorous twinkle 'you see what I am now, according to Lord John Russell'. The *malapropos* here was not even so bad. Robertson's attainments were of the slenderest description, and his industry very fitful; but he could make a vigorous and brilliant display both in composition and in conversation.

Readers of the *Autobiography* remember the account Mill gives of his two most brilliant successes achieved by the Review; the saving of Lord Durham, and the rescuing of Carlyle's French Revolution from probable failure. In an interesting letter written soon after the Review ceased, he insists with even greater *empressement* on these two feats, but adds; "My *third* success is that I have dinned into people's ears that Guizot is a great thinker and writer, till they are, though slowly, beginning to read him—which I do not believe they would be doing yet, in this country, but for me." His admiration of Guizot persisted some time longer, and led to his most elaborate article of all, in the Edinburgh Review, five years later, which article he has seen fit to reprint; but we may suppose that Guizot's subsequent career and writings had a disenchanting effect on him as on many others.[1]

Reverting to the salient idea of his political articles for those seven or eight years—the fatality of there being no leader of the Radical party, although it was composed of very able men—I have often wondered in vain what he expected a leader to do or to be. Everything is not possible even to the greatest of chiefs; and it is doubtful whether any of the men that ever wielded the fierce democracy, from Demosthenes to Gambetta, would have headed a conquering majority in the last years of the Melbourne Ministry. He nearly admits as much, but not without reservation. He says explicitly that his father might have been such a leader; and even implies that he himself could have made the state of matters very different. We may well hesitate on both heads. That his father would have made an able minister

He contributed striking articles to the Review, the best being his Cromwell. He was also a very good writer of newspaper articles. His impetus and suggestiveness in conversation drew out Mill, who never talked better than he did with him. But although he made friends in London circles and in the clubs, he was very distasteful to many of Mill's associates and increased the difficulties of carrying on the Review; being in fact, for a *novus homo* as Henry Mill styled him, somewhat arrogant. He took much interest in the Scotch Non-Intrusion controversy, and coached the Melbourne Government upon the question. About 1844, he disappeared from London, and was afterwards rarely heard of. Mill scarcely ever mentioned his name in later years. His widow has gathered together the extant indications of his career, but he left few or no reminiscences of his more interesting connexions.

[1] I cannot identify all the signatures of the articles in the Review; but in addition to the contributors incidentally brought forward in the text, I may mention the names of Lytton Bulwer, Charles Buller, J. A. Roebuck, James Martineau, Harriet Martineau, Blanco White, Andrew Bisset, W. J. Fox, Mazzini, George Fletcher, Henry Cole. Never was so much 'good blood' infused into a periodical of the same duration. Of old Reviews, I think it would be difficult to produce nine volumes possessing the same amount of interest and stimulus.

or party-leader, we must cheerfully allow; but his sentiments and views would have required a thick covering of disguise to allow even his being elected to Parliament, and still more to qualify him for meeting that most pressing want of the time—Reform of the Church.

This paper may fitly conclude with the remaining event of importance in the year 1840—the last illness and death of Mill's favourite brother Henry, which took place at Falmouth, on the 4th April, in his 19th year. He was sent there in the beginning of the year, for the relief of his complaint—consumption; and John plied him with every kindness that he could devise. He went and lived at Falmouth, during his illness, as long as he could get away from his office; and had an opportunity at the same time of seeing a great deal of Sterling, who was there also on account of chest-weakness. A letter of warm acknowledgment to Mr. Barclay Fox, of Falmouth, for the attention bestowed on Henry by his family, is for Mill unusually effusive, and teems with characteristic traits. One not a Christian, addressing a Christian family upon death, and wakening up the chords of our common humanity, is a spectacle worth observing.

A. Bain.

(To be continued.)

VI.—THE HEDONICAL CALCULUS.

Problem.—To find (α) the distribution of means and (β) of labour, the (γ) quality and (δ) number of population, so that there may be the greatest possible happiness.

Definitions.—(1.) *Pleasure* is used for "preferable feeling" in general (in deference to high authority, though the general term does not appear to call up with equal facility all the particulars which are meant to be included under it, but rather the grosser[1] feelings than for instance the "joy and felicity" of devotion). The term includes absence of pain. *Greatest possible happiness* is the greatest possible integral of the differential 'Number of enjoyers × duration of enjoyment × degree thereof' (*cf.* axiom below).[2]

(2.) *Means* are the distributable proximate means of pleasure, chiefly wealth as destined for consumption and (what is conceivable if not usual in civilisation) the unpurchased command of unproductive labour.

[1] Compare the base associations of "Utilitarianism". Surely, as Mr. Arnold says, a pedant invented the term.

[2] The greatest possible value of $\iiint dp\,dt\,dn$ (where dp corresponds to a just perceivable increment of pleasure, dt to an instant of time, dn to a sentient individual).

(3.) An individual has greater *capacity for happiness* than another, when for the same amount whatsoever of means he obtains a greater amount of pleasure, *and also* for the same increment (to the same amount) whatsoever of means a greater increment of pleasure.

This "definition of a thing" is doubtless (like Euclid's), imperfectly realised. One imperfection is that some individuals may enjoy the advantages not for *any* amount of means, but only for values above a certain amount. This may be the case with the higher orders of evolution. Again one individual may have the advantages in respect of one kind of means, another of another. But, if one individual has the advantages in respect of most and the greatest pleasures, he may be treated as having more capacity for pleasure in general. Thirdly, the two advantages may not go together. If "the higher pleasures, such as those of affection and virtue, can hardly be said to come from pleasure-stuff at all" (as Mr Barratt says in his able Note in MIND X. often cited below), it is possible (though not probable?) that the enjoyers of the higher pleasures should derive from the zero, or rather a certain minimum, of means (and *à fortiori* for all superior values) an amount of pleasure greater than another class of enjoyers, say the sensual, can obtain for any amount whatsoever of means; *while at the same time* the sensual obtain greater increments of pleasure for the same increments of means (above the minimum). In such a case the problem would be complicated, but the solution not compromised. Roughly speaking, the first advantage would dominate the theory of population; the second the distribution of means. A fourth imperfection in the statement of the definition is that the units whose capacities are compared are often *groups* of individuals, as families. With these reservations the reality of the definition may be allowed.

But it may be objected that differences of capacity, though real, are first not precisely ascertainable, and secondly artificial being due to education. But, first, even at present we can roughly discriminate capacity for happiness. If the higher pleasures are on the whole most pleasurable—a fact of which the most scientific statement appears to have been given by Mr. Sully (*Pessimism*, Note to chap. 11)—then those who are most apt to enjoy those pleasures tend to be most capable of happiness. And, as Mr Barratt says, it "seems (speaking generally) to be the fact that, the higher a being in the scale of evolution, the higher its capacity for pleasure"; while greater precision might be attainable by improved examinations and hedonimetry. Further it will be seen that some of the applications of the problem turn upon *supposed*, rather than ascertained, differences of capacity. The second objection, William Thompson's, would hardly now be maintained in face of what is known about heredity. But it is worth observing that his conclusion, equality of distribution, follows from his premiss only in so far as a proposition like our first postulate (below) is true of wealth and labour applied to *education*, in so far as it is true that improvement is not proportionately increased by the increase of the means of education.

(4.) An individual has more *capacity for work* than another, when

for the same amount whatsoever of work done he incurs a less amount of fatigue, *and also* for the same increment (to the same amount) whatsoever of work done a less increment of fatigue.

This fourth definition may present the same imperfections as the third. Indeed the fourth definition is but a case of the third; both stating relation between means and pleasure. The third definition becomes the fourth, if you *change the signs* of means and pleasure, put means produced for means consumed and the pains of production for the pleasures of consumption. Or not even the latter change, in so far as labour is sweet (which is very far according to Fourier). It is submitted that this identification confirms the reality of the third definition, since the reality of the fourth is undisputed. Of course, if we identify the definitions, we must bear in mind that they are liable to be separated in virtue of the second imperfection above noticed.

Axiom.—Pleasure is measurable, and all pleasures are commensurable; so much of one sort of pleasure felt by one sentient being equateable to so much of other sorts of pleasure felt by other sentients.

Professor Bain has shown (*Emotions and Will*, Third Ed.) how one may correct one's estimate of one's own pleasures upon much the same principle as the observations made with one's senses; how one may correctly estimate the pleasures of others upon the principle "Accept identical objective marks as showing identical subjective states," notwithstanding personal differences, as of activity or demonstrativeness. This "moral arithmetic" is perhaps to be supplemented by a moral differential calculus, the Fechnerian method applied to pleasures in general. For Wundt has shown that sensuous pleasures may thereby be measured, and, as utilitarians hold, all pleasures are commensurable. The first principle of this method might be: Just-perceivable increments of pleasure, of all pleasures for all persons, are equateable (*cf.* Wundt, *Phys. Psych.*, p. 295). Implicated with this principle and Bain's is the following: Equimultiples of equal pleasures are equateable; where the multiple of a pleasure signifies exactly similar pleasure (integral or differential) enjoyed by a multiple number of persons, or through a multiple time, or (time and persons being constant) a pleasure whose degree is a multiple of the degree of the given pleasure. The last expression is open to question (though see Delbœuf *Étude psychophysique*, vii. and elsewhere), and is not here insisted upon. It suffices to postulate the practical proposition that when (agreeably to Fechnerian conceptions) it requires n times more just-perceivable increments to get up to one pleasure from zero than to get up to another, then the former pleasure enjoyed by a given number of persons during a given time is to be sought as much as the latter pleasure enjoyed by n times the given number of persons during the given time, or by the given number during the multiple time. Just so one cannot reject the practical conclusions of Probabilities, though one may object with Mr. Venn to speaking of *belief* being numerically measured. Indeed these principles of μετρητική are put forward not as proof against metaphysical subtleties, but

as practical; self-evident *à priori*, or by whatever ἐπαγωγὴ or ἐθισμὸς is the method of practical axioms.

Let us now approach the Problem, attacking its inquiries, separately and combined, with the aid of appropriate POSTULATES.

(*a*) The *first postulate* appropriate to the first inquiry is: The rate of increase of pleasure decreases as its means increase. The postulate asserts that the second differential of pleasure with regard to means is continually negative. It does not assert that the first differential is continually positive. It is supposable (though not probable) that means increased beyond a certain point increase only pain. It is also supposable that "the higher pleasures" do not "come from pleasure-stuff at all," and do not increase with it. Of course there are portions of the utilitarian whole unaffected by our adjustments; at any rate the happiness of the stellar populations. But this does not invalidate the postulate, does not prevent our managing our "small peculiar" for the best, or asserting that in respect thereof there tends to be the greatest possible happiness. The proposition thus stated is evidenced by every-day experience; experience well focused by Buffon in his *Moral Arithmetic*, Laplace in his *Essay on Probabilities*, William Thompson in his *Inquiry into the Distribution of Wealth*, and Mr. Sidgwick in the *Methods of Ethics*.

This empirical generalisation may be confirmed by "ratiocination" from simpler inductions, partly common to the followers of Fechner, and partly peculiar to Professor Delbœuf. All the formulæ suggested for the relation between quantity of stimulus and intensity of sensation agree in possessing the property under consideration; which is true then of what Prof. Bain would describe, as pleasures of mere intensity; coarse pleasures indeed but the objects of much expenditure. Thus pleasure is not proportionately increased by increased glitter of furniture, nor generally by increased scale of establishment; whether in the general case by analogy from the Fechnerian experiments on the senses (*cf.* Fechner *Psychophysik*, ix. 6), or by a more *à priori* "law of relation" in the sense of Wundt.

But not only is the function connecting means and pleasure such that the increase of means does not produce a proportionate increase of pleasure; but this effect is heightened by the function itself so varying (on repetition of the conditions of pleasure) that the same means produce less pleasure. The very parameter in virtue of which such functional variation occurs is exhibited by Prof. Delbœuf in the case of eye-sensations (*Étude 'psychophysique*, &c.); that a similar variation holds good of pleasures in general is Bain's Law of Accommodation. Increase of means then, affording proportionately increased repetition of the conditions of pleasure, does not afford proportionately increased pleasure. Doubtless there are compensations for this loss; echoes of past pleasures, active habits growing up in the decay of passive impressions. Indeed the difference of individuals in respect to these compensations constitutes a large part of the difference of capacity for pleasure.

It may now be objected: increased means do not operate solely by

repeating old pleasures, but also by introducing to new (*e.g.* travel); also the "compensations" may *more than counterbalance* the accommodations. It is generally replied: In so far as a *part only* of happiness increases *only proportionately* to its means, the second differential of happiness with regard to means does not cease to be negative. That second differential cannot be *continually* negative. Its being negative for a space *may* not affect the reasoning. If it does affect the reasoning, one conclusion, the inequality of distribution, would probably (if the pleasure-curve is not very complicated) become *à fortiori*. Not only would the less capable receive then *still less* means, but even the equally capable might then not all receive equal means.

This being postulated, let us mark off the degrees of capacity for happiness on an abscissa (supposing that capacity is indicated by the values of a *single* variable; if by the values of a *function of several* variables, the proof differs only in complexity). At each degree erect an ordinate representing the number of individuals of that degree of capacity. On the rectangle corresponding to each individual it is required to construct a parallelopiped representing his means. Let us proceed to impart the distribuend means—in the first inquiry a given distribuend to given distributees doing each a given amount of labour—by way of small increments. Let us start with the assumption that each individual has and shall retain that minimum of means just sufficient to bring him up to the zero-point of happiness (a conception facilitated by, though not quite identical with, the economical "natural minimum of wages"). Thereafter who shall have the first increment of means? By definition an individual of the highest capacity (at least supposing the *minimum* to be the same in all capacities). Who shall have the next increment of means? *Another* individual of the highest capacity, in preference to *the same* individual by the postulate. Thus a first dividend will be assigned to the first section (all the individuals of the highest capacity) exclusively. But they will not continue sole assignees. Their means only, being continually increased, must by the postulate reach a point such that an increment of means can be more felicifically assigned to an individual of the *second section* (the next highest capacity) than to one of the first. The second section will then be taken into distribution. Thus *the distribution of means as between the equally capable of pleasure is equality; and generally is such that the more capable of pleasure shall have more means.*

The law of unequal distribution is given by a plane curve, in the plane of the capacities and means, say a *megisthedone*. To different distribuends correspond megisthedones differing only by a *constant*. For it is educible from the postulate that there is *only one family* of megisthedones. We may have any number of *maxima* by *tacking* between different members of the family. But the *greatest possible value* is afforded by the *continuous solution*.

If we now remove the condition that each individual shall retain his minimum, what happens? Simply that the megisthedones may now dip below the minimum line. But it is improbable that they should dip very low under the minimum at the lower end while they rise very high above

the minimum at the higher end ; since excessive physical privations cannot be counter-balanced by any superfluity of refined pleasures. In fact, if we assume that the zero of means corresponds to *infinite pain* of privation, (*cf.* Wundt's curve of pleasure and pain) then by investigating the radius of curvature it is shown that, as the distribuend diminishes, the megisthedone tends to become a horizontal line. In famine the distribution even between unequals is equality—abstracted ulterior considerations, as of posterity.

These conclusions may be affected by the imperfections of the third definition. By the first imperfection, if the "minimum" line were not horizontal. Secondly, suppose that the individuals who have less capacity for pleasures in general have a special capacity for particular pleasures. The bulk of means will be distributed as before. But there will be a residue distributed according to a *second megisthedone*. The second megisthedone super-imposed upon the first will more or less deform it. Lastly, the unit distributee is often a *group* (*e.g.*, a married couple, in respect of their common *ménage*). The conclusions may be affected, in so far as the most capable groups are made up of individuals not most capable *as individuals*.

(β) The distribution of labour (to which attention has been called by Mr. Barratt) is deduced by a parity of reason from the parallel *second axiom:* that the rate of increase of fatigue increases as the work done increases ; which is proved by common experience and (for muscular work) by the experiments of Prof. Delbœuf (*Étude psychophysique*). As appears indeed from Prof. Delbœuf's formulæ, the first and second postulates are to a certain extent implicated (whereby the first postulate gains strength). Let us now arrange our individuals according to their *capacity for work* and proceed as before. Who shall do the first increment of work? Of course one of the most capable of work. And so on. *The distribution of labour as between the equally capable of work is equality ; and generally is such that the most capable of work shall do more work*—so much more work, as to suffer more fatigue.

The inquiry presents the same declensions as the first. In particular co-operatives are to be compared *not inter se*, but with the *similar* operatives in similar co-operative associations : except indeed so far as the work done is a *symmetrical function* of the effort of fellow-workers. It is deducible that the rowers of a *νηὸς ἐΐσης* shall have equal fatigue ; but the fatigue of the pilot is not to be equated to that of the oarsman. All the while it is to be recollected that the fatigue or *pain of work* under consideration may be *negative*.

($\alpha\beta$) To combine the first and second inquiries, determine by the Differential Calculus the constants of a *megisthedone* and a *brachistopone* such that the means distributed by the former may be equal to the work distributed by the latter *and* that the (algebraical) sum of the pleasures of consumption and the pains of production may be the greatest possible. Or, *ab initio*, by the Calculus of Variations, we may determine the *means* and *fatigue* as *independent variable functions* satisfying those two conditions.

$$\text{Let } \nabla = \int_{x_0}^{x_1} n[\mathrm{F}(xy) - p - c\{y - f(xp)\}]dx$$

where x is degree of *either* capacity, or more elegantly a third variable in terms of which both capacities may be expressed ; x_1 and x_0 are the given limits of integration (the number and quality of the distributees being not

in the present inquiry variable); n is the number of each section; $\mathrm{F}(xy)$ is a unit's pleasure of consumption, being a function of x his quality (capacity for pleasure) and the *independent variable* y his means; p is the unit's pain of work, another independent variable function; c is the constant incidental to problems of *relative* maximum; $f(xp)$ is the work done by the unit, being a function of his quality (capacity for work) and fatigue (effort).

Greatest possible happiness = greatest possible value of

$$\int_{x_0}^{x_1} n\,[\mathrm{F}(xy) - p]\,dx =$$

greatest possible value of V, c being taken so that

$$\int_{x_0}^{x_1} n\,[y - f(xp)]\,dx = 0.$$

The second term of the variation of V,

$$n\left[\delta y^2\,\frac{d_2\mathrm{F}}{dy^2} + \delta p^2\,\frac{d_2 f}{dp^2}\right]$$

is continually negative by the postulates. Therefore the greatest possible value of V is when its first term of variation vanishes. The first term of variation,

$$n\delta y\left[\left(\frac{d\mathrm{F}}{d\,y}\right) - c\right] + n\delta p\left[c\left(\frac{d\,f}{dp}\right) - 1\right],$$

vanishes only when both

$$\left(\frac{d\mathrm{F}}{d\,y}\right) = c \text{ and } \left(\frac{d\,f}{dp}\right) = \frac{1}{c}.$$

If these equations hold, the two rules (α and β) hold. Q.E.D. The combined solution takes for granted that the means of pleasure and the pain of work *are independent* variables. And to a certain extent this may fail to be the case. An individual may want *strength* or *time* to *both* enjoy the means and do the work which the double rule assigns to him. In that case there will be a compromise between the two rules.

(γ) The *third postulate* simplifying the third inquiry is that capacity for pleasure and capacity for work generally speaking go together; that they both rise with evolution.[1] The *quality of population should be the highest possible evolution*—provided[2] that the first imperfection of the third definition does not give us pause. To advance the whole population by any the same degree of evolution is then desirable; but it is probably not the most desirable application of a given quantity of *means of education*. For it is probable that the highest in the order of evolution are most *capable of education* and improvement. In the general advance the most advanced should advance most.

(δ) The *fourth postulate* essential to the fourth inquiry is that, as population increases, means (the distribuend) increase at a decreasing rate. This is given by the Malthusian theory with regard to the products of extractive labour. And this is sufficient. For the second

[1] See *New and Old Methods of Ethics* (by the present writer), p. 72.
[2] *Ibid.*, p. 77.

differential of the whole means with regard to population is still negative, even though a *part* of means increase *proportionately* to the number of population; for instance, unproductive labour requiring little or no materials (*e.g.*, ballet-dancers), or those manufactured articles of which the cost is not appreciably affected by the cost of the raw material. From this Malthusian premiss it is deduced that *population should be limited;* but the hedonical conclusion is not necessarily of the same extent as the Malthusian (*cf.* below $\alpha\beta\gamma$ and $\beta\delta$). A simple inquiry under this head is the following. Assuming that all the sections (degrees of capacity or orders of evolution) multiply equally, and that each section reproduces exactly his kind, to find the rate of increase?

($\gamma\delta$) A more important inquiry is: *not* assuming that all sections multiply equally, to find the average issue for each section, so that the happiness of the next generation may be the greatest possible.

First let us introduce a conception more appropriate than was possible under the preceding head; namely, that each section does not reproduce exactly its kind, but that the issue of each (supposed endogamous) section ranges on either side of the parental capacity, as thus—

$\nu = \beta\epsilon^{\frac{-(\xi-x)^2}{b^2}} \times \frac{n}{2}$; where ξ is the capacity of the parental section, n its number (= something like $A\epsilon^{\frac{-\xi^2}{a^2}}$, since the parental generation is to be conceived as ranging under a curve of possibility; *cf.* Galton Quetelet, &c.), ν is the number of issue of capacity x. Perhaps b is constant for all the curves of issue; the variation of β alone determines the natural maximum, or artificial limit, of the average issue. But neither the symmetry of the curves of possibility, nor the particulars of this conception, are postulated.

The *fifth postulate* appropriate to this case is that to substitute in one generation for any number of parents an equal number each superior in capacity (evolution) is beneficial for the next generation. This being granted, either analytically with the aid of Mr. Todhunter's *Researches* (chap. II.), or by unaided reason, it is deduced that the average issue shall be as large as possible for all sections above a determinate degree of capacity, but zero for all sections below that degree.

But can we be certain that this method of *total selection* as it might be termed holds good when we provide not only for the next generation, but for the indefinite future? In the continuous series of generations, wave propagating wave onward through all time, it is required to determine what wavelet each section of each wave shall contribute to the proximate propagated wave, so that the whole sum of light of joy which glows in the long line of waves shall be the greatest possible. If in the distant future, agreeably to the views of Herbert Spencer, population tends inartificially to become nearly stationary; if to the contemplator of all time generations fade into differentials; we may conceive formed a differential equation connecting the population of one generation with the population of its successor and involving an *independent variable function*, the average issue for each section. By the Calculus of Variations (if the calculator is not at sea) it is educed that the average issue shall be as large as possible

for all sections above a (for each time) determinate degree of capacity, but zero for all sections below that degree. But a further postulate is required for so long as the movement of population is not amenable to infinitesimal calculus; while the present initial irregular disturbances are far from the tranquil waves of the "stationary" state. This *sixth postulate* might be: To substitute in one generation for any number of parents an equal number each superior in capacity (evolution) is beneficial for all time. This postulate being granted, *if possible* let the most beneficial selection be not *total*. Then a total selection can be arranged more beneficial!

If only we have swum through the waves to a *terra firma*, our position need not appear outlandish. For, first, these rules are very general, founded on very abstract tendencies and requiring to be modified in practice. Thus our principle of selection might be modified, in so far as endogamy should not be the rule, if the higher orders of evolution have a greater tendency to reversion (in violation of the fifth and sixth postulates), and so forth. Again, since to exclude some sections from a share of domestic pleasures interferes with the principle of (α), it could not be expedient to sacrifice the present to the future, without the highest scientific certainty and political security. Again to indicate an ideal, though it can only be approached *ἀνθρωπίνως*, may be useful. What approach is useful in such cases is to be determined by Mr. Todhunter's principle (*Researches*, chap. II.). Again mitigations might be provided for the classes not selected. (*Cf.* Galton "The weak could find a welcome and refuge in celibate monasteries, &c."; also Sully, *Pessimism*, p. 392). In particular they might have the benefit of rule (β) now almost cut away by the struggle of competition. Again *emigration* might supplement total selection; emigration from Utopia to Atopia —some unprogressive country where the prospect of happiness might be comparatively zero.

($\alpha\gamma\delta$) In the preceding analysis ($\gamma\delta$) the distribution of means (and labour) was supposed given. But the reasoning is unaffected, if the distribution of means is supposed variable; provided that the later postulates are not affected by that distribution. And this they might be on Mr. Doubleday's hypothesis. But in Herbert Spencer's more probable view of the relation of affluence to populousness, the first rule (α) will become *à fortiori*.

Under this head may be considered the question: *What is the fortune of the least favoured class in the Utilitarian community?* Let us consider first the case of *emigration* for the benefit of the present generation. Let us start with the supposition, however inappropriate, that the distribuend does not vary with population; as in an isolated island where the bounty of nature could not be affected by human exertion.

The happiness of the present generation may be symbolised

$$\int_{x_0}^{x_1} n\,[\mathrm{F}(xy) - cy]\,dx + c\mathrm{D}$$

where D is the given distribuend and the rest of the notation is as above ($\alpha\beta$). By the third postulate x_1 is given as the highest existing degree of capacity. What remains variable is x_0, the abscissa of emigration. At the

limit $F(x_0 y_0) - cy_0 = 0$. Now c is positive, for it equals $\left(\frac{dF}{dy}\right)$, the first differential of pleasure with regard to means, which (presupposed a utilitarian intelligence) is probaby never negative (above, Postulate I.). But this is not postulated. Only, if $\left(\frac{dF}{dy}\right)$ is negative, we are dealing with the *external case* of the inquiry; determining what sections shall *immigrate* (from Atopia). For if the Utopians have such a plethora of means that their happiness would be increased by a diminution of their means, then immigration will set in until the point of satiety be at least repassed. Then c is positive; and y is essentially positive. Therefore $F(x_0 y_0)$ is positive. It cannot be zero, the zero-point of pleasure corresponding to a positive minimum of means.

In this case *the condition of the least favoured class is positive happiness.* This conception assists us to conceive that a similar answer would be obtained, if the increase of the distribuend with increasing population were *small.*

Small in relation to the megisthedonic share of the least favoured class. Write the distribuend $\int_{x_0}^{x_1} nf(xpN)dx$; where p is the effort of each unit worker, so far supposed given as a function of x; N is the number of population $= \int_{x_0}^{x_1} n dx$. Differentiate the distribuend with regard to x_0. Substitute x for x_0 and call the curve so presented the *Malthusian.* Then *the condition of the least favoured class is positive, zero,* or *negative happiness,* according as at the limit the ordinate of the Malthusian is less than, equal to, or greater than that of the megisthedone.

Our uncertainty as to the condition of the lowest class increases, when we consider the case of *selection* for the benefit of the next generation.

Let $n = \phi(x)$ be the curve of possibility for the present generation. Let $\nu = \mathrm{B}\epsilon^{\frac{-(x-\xi)^2}{b^2}} \times \frac{n}{2}$ be the curve of issue for capacity ξ; where B is the natural maximum of issue. Then n^1, the line of possibility for the next generation, is $\int_{x_0}^{x_1} \frac{1}{2} \mathrm{B}_{x+z} \epsilon^{\frac{-z^2}{b^2}} \phi(x+z)dz$, where by the fifth postulate x_1 is given as the highest existing degree of capacity; what is variable is x_0 the abscissa of total selection. The happiness of the next generation $\mathrm{H}^1 = \int_{-\infty}^{+\infty} [n^1(\mathrm{F}(xy) - cy)]dx + c\mathrm{D}$, where ∞ is a convenient designation for the utmost extent of *variation*—variation in the Darwinian sense x_0 is given by the equation $\frac{d\mathrm{H}^1}{dx_0} = 0$; from which it is by no means clear that the condition of the least favoured in the second generation is above zero.

In fact the happiness of some of the lower classes may be sacrificed to that of the higher classes. And again the happiness of part of the second generation may be sacrificed to that of the succeeding generations. Moreover (it is convenient, though out of order, here to add) our uncertainty increases when we suppose the laboriousness also of population variable. *Nothing indeed appears to be certain from a quite abstract point of view*, except that the required limit is above the starving-point; both because in the neighbourhood of that point there would be no work done, and—before that consideration should come into force and above it—because the pleasures of the most favoured could not weigh much against the privations of the least favoured. (*Cf.* Wundt's pleasure-curve.)

It may be admitted however that a limit below the zero of happiness, even if abstractedly desirable, would not be humanly attainable; whether because discomfort in the lower classes produces political instability (Aristotle, &c.), or because only through the comfort of the lower classes can population be checked from sinking to the starving-point (Mill, &c.). Let Politics and Political Economy fix some such limit above zero. If now Hedonics indicate a limit still superior (in point of comfort)—well. But if abstract Hedonics point to a limit *below* that hard and fast line which the consideration of human infirmity imposes, what occurs? Simply that population shall press up against that line without pressing it back.

($\beta\delta$) When labour, as well as number of population, is variable, in order that the vanishing of the first term of variation may correspond to a maximum, there is needed in addition to the second and fourth postulates a further condition between the portions of the second term of (the distribuend's) variations which are under the integral sign. A *seventh postulate*, more than sufficient for the purpose, is that the surface $W = f(p\ N)$, representing the work of a unit in terms of his effort and the number of population, should (for each capacity) have no parabolical or hyperbolical points. This is probable, in so far as it is probable that the functions with which we have to deal are simple. But if this condition fails there fails not the second rule (β); there *might* fail the proof which Hedonics might (as just shown) give that there is a limit of population required for the *well-being*, superior to and quite distinct from the limit which is known to be required for the *being* of society. In short the effect of this last consideration is slightly to diminish the probability (previously even?) that there is such a distinct hedonical limit.

($\beta\gamma\delta$) Under this head should be considered whether rule (β) does not interfere with rule ($\gamma\delta$). And this upon Mr. Herbert Spencer's theory of population it would do. (Contrast however Champagny, *Les Antonins*, III., p. 277.) The present then may have to be sacrificed to the future; though in general how much of the present it is expedient to sacrifice to the future must be as nice a question in political, as in personal prudence.

($\alpha\beta\gamma\delta$) Contemplating the combined movements we seem to see the vast composite flexible organism, the play and the work of whose members are continually readjusted, by degrees advancing up the line of evolution; the parts about the front advancing most, the members of the other extremity more slowly moving on and largely dying

off. The final shape of the great organism, whether its bounding line of possibility shall be ultimately perpendicular, whether the graduation of (in a Greek sense) *aristocracy*, or the level of modern revolution, is the ideal of the future, is still perhaps a subject more for prejudice than judgment. Utilitarianism, indifferent about the means, with eye undistorted by prepossessions, looks only to the supreme end.

COROLLARIES. The application of these inquiries is (I.) to first principles (II.) to subordinate rules of conduct.

I. The end of conduct is argued to be Utilitarianism, as exactly defined in the *Methods of Ethics*, by deducing from that general principle maxims of common sense; perhaps as the constitution of matter is proved by deducing from the theory experimental laws. What inferior accuracy in the moral universe indeed! But before that inferiority should prejudice, let it be settled what degree of accuracy was here to be expected. No one would listen to Prof. Clerk Maxwell πιθανολογοῦντος about the atoms without a mathematical correspondence of his theory and the facts. But we have a large experience of the progress of Physics; it is well seen how she goes; but is the movement of Morals so familiar that the true science should be manifest by her method! Whatever the method—for Universal Eudæmonism prescribes no dogma about the origin of her supremacy; affiliated as readily to practical reason as pure passion, the "Faith" of a Green or "Ideals" of a Grote—whatever our faith, when we descend from faith to works, requiring a criterion for alternative actions, it may be divined that we shall not far err in following, however distantly, the procedure of the *Methods of Ethics*.[1]

Consider first then Equality, the right of equals to equal advantages and burdens, that large section of distributive justice, that deep principle which continually upheaves the crust of convention.

πολλάων πολίων κατέλυσε κάρηνα
ἠδ' ἔτι καὶ λύσει· τοῦ γὰρ κράτος ἐστι μέγιστον.

All this mighty moral force is deducible from the practical principle of exact Utilitarianism combined with the simple laws of sentience (*α* and *β*).

But Equality is not the whole of distributive justice. There may be needed an ἀξία for unequal distribution. Now inequalities of fortune—abstracted the cases of governor and general and every species of trustee for the advantage of others—are generally explained by utilitarians as the consequence of conventions clear and fixed and preventing confusion and encouraging production, but not otherwise desirable, or rather of which the necessity is regretted. Yet in the minds of many good men among the moderns and the wisest of the ancients, there appears a deeper sentiment in favour of aristocratical privilege—the privilege of man above brute, of civilised above savage,

[1] Pp. 90, 346, 392, &c., 2d edn. *Cf.* Buffon, *Moral Arithmetic*: "Le sentiment n' est en général qu' un raisonnement implicite moins clair, mais souvent plus fin et toujours plus sûr que le produit direct de la raison." (He is proving our first postulate.)

of birth, of talent, and of the male sex. This sentiment of right has a ground of utilitarianism in supposed differences of *capacity*. Capacity for pleasure is a property of evolution, an essential attribute of civilisation (α). The grace of life, the charm of courtesy and courage, which once at least distinguished rank, rank not unreasonably received the means to enjoy and to transmit (α). To lower classes was assigned the work of which they seemed most capable; the work of the higher classes being different in kind was not to be equated in severity (β, *cf.* Livy II., 32). If we suppose that capacity for pleasure is an attribute of skill and talent (α); if we consider that production is an *unsymmetrical function* of manual and scientific labour (β); we may see a reason deeper than Economics affords for the larger pay, though often more agreeable work, of the aristocracy of skill and talent. The aristocracy of sex is similarly grounded upon the supposed superior capacity of the man for happiness, for the ἐνεργείαι of action and contemplation; upon the sentiment—

> "Woman is the lesser man, and her passions unto mine
> Are as moonlight unto sunlight and as water unto wine".

Her supposed general incapacity is supposed to be compensated by a special capacity for particular emotions, certain kinds of beauty and refinement. Agreeably to such finer sense of beauty the modern lady has received a larger share of certain *means*, certain luxuries and attentions (Def. 2; *a sub finem*). But gallantry, that "mixed sentiment which took its rise in the ancient chivalry," has many other elements. It is explained by the polite Hume as attention to the weak (*Essay* 14), and by the passionate Rousseau φυσικωτέρως (*Émile* 4). Now attention to the weaker sex, and woman's right not only to certain attentions in polite society but to some exemption from the harder work of life, are agreeable to the utilitarian theory: that the stronger should not only do more work, but do so much more work as to suffer more fatigue where fatigue must be suffered (β). It may be objected: consideration should equally be due from the stronger to the weaker members of the same sex. But in the latter case there is wanting a natural instinct predisposing to the duties of benevolence; there has been wanting also a fixed criterion of strength to fix the associations of duty; and lastly competition has interfered, while competition between man and woman has been much less open (and much less obviously useful to the race). Altogether, account being taken of existing, whether true or false, opinions about the nature of woman, there appears a nice consilience between the deductions from the utilitarian principle and the disabilities and privileges which hedge round modern womanhood.

Utilitarian also is the custom of family life, among other reasons, in so far as (contrasted with communistic education) it secures for the better-born better educational influences (γ); in particular a larger share of good society in early life. The universal principle of the struggle for life, as Mr Barratt may suggest, conduces to Utilitarian selection. This being borne in mind, there appears a general correspondence between the population-theory above deduced ($\gamma\delta$) and the

current ethics of marriage, which impose[1] only a precedent condition, success, hereditary or personal, in the struggle for life. Concerning the classification of future society common-sense anticipates no utopia of equality. Physical privations are pitied; the existence of a subordinate and less fortunate class does not seem to accuse the bounty of Providence. (*Cf.* Burke on the "labouring poor" in *Regicide Peace* 3.) With the silence of common-sense accords the uncertain sound of exact Utilitarianism ($\alpha\gamma\delta$).

But, if egoist or intuitionist are not to be altogether converted by the deductive process of Mr Sidgwick, at least the dealing with his exact definition may tend to mark out and reclaim from the indefinite one large common field of conduct, one of the virtues of the intuitionist, one of the gratifications of the egoist—rational benevolence. For can there be a rational wish to please without a willingness to estimate the duration of the pleasure, the susceptibility, as well as the number, of the pleased?

Exact Utilitarianism may also, as Mr. Barratt thinks plausible, present the end of Politics; of Politics as based upon self-interest. A political "contract" for the adjustment of conflicting interests should have two qualities. It should be clear and fixed, universally interpretable in the same sense. It should be such that the naturally more powerful class, those who though fewer outweigh the more numerous by strength ability and capacity to co-operate, should not have reason to think that they would fare better under some other contract. Two contracts present these qualities; the rough and ready *iso*cratical, the exact possibly *aristo*cratical, Utilitarianism. The first contract excels in the first quality; the second in the second.

II. That the same reasonings should lead up to a general principle and down again to its applications—that the theory should be tolerably certain, the practice indefinitely remote—is not more paradoxical than that the demonstrator of the atom-theory should foresee the remote possibility of its application, no less a possibility than to triumph over the second law of Thermodynamics (Clerk Maxwell, *Theory of Heat*, p. 308). The triumphs of Hedonics, if equally conceivable, are equally remote; but they do not so certainly become more conceivable when considered more remote; for what if in the course of evolution the subtlety of science should never overtake the subtlety of feeling! Faint and vague and abstracting many things which ought not to be abstracted, the Hedonical Calculus supplies less a definite direction than a general bias, here briefly and diffidently indicated.

The end of action being defined as above, the Jacobin ideal 'All equal and rude,' J. S. Mill's ideal 'All equal and cultivated,' are not necessarily desirable, not paramount ends to be sought by revolution or the more tedious method of depopulation. Pending a scientific hedonimetry, the principle 'Every man, and every woman, to count for one' should be very cautiously applied. In communistic association (if such should be) the distribution of produce should be rather upon the principle of Fourier than of Owen. Universal equal suffrage

[1] In respect to population.

is less likely to be approved than plural votes conferred not only (as Mill thought) upon sagacity, but also upon capacity for happiness.

The play of the struggle for life is to be encouraged, in the present state of society, within limits, without prejudice to the supremacy of the supreme principle. Mr. Barratt indeed from the same premisses, the utility of competition, infers a different conclusion: that Utilitarianism should resign in favour of Egoism. But surely the inference is, not that the Utilitarian should change his destination from Universal to Egoistic Hedonism (points *toto cœlo* apart, as the chart of Sidgwick shows); but that, while constant to his life's star, he should *tack* (in the present state of storm at least) more considerably than the inexperienced voyager might advise. No one can misunderstand this "self-limitation" of Utilitarianism—for it has been explained by Mr. Sidgwick; least of all the Egoist—for a similar delegation, without abdication, of the supreme command is much more necessary in the case of the supremacy of self-love (Butler, &c.).

Lastly, while we calculate the utility of pre-utilitarian institutions, we are impressed with a view of Nature, not, as in the picture left by Mill, all bad, but a first approximation to the best. We are biassed to a more conservative caution in reform. And we may have here not only a direction, but a motive, to our end. For, as Nature is judged more good, so more potent than the great utilitarian has allowed are the motives to morality which religion finds in the attributes of God.

F. Y. Edgeworth.

VII.—NOTES.

The So-called Idealism of Kant.

In a note by Professor Caird, in Mind XIII., there are some remarks on Kant's view of the external world which appear to me inaccurate and misleading: and since Mr. Caird has acquired a right to speak with some authority on this subject, it seems desirable that his misrepresentations—if I am right in so regarding them—should be carefully noted and pointed out. The passage to which I refer is the following:—

"The truth is that Mr. Balfour has never realised the difference between the so-called Idealism of Berkeley and the Idealism of Kant. This is manifest from the whole course of his paper, and particularly from some of his criticisms on Kant's 'Refutation of Idealism'. Thus (p. 498) Mr. Balfour says: 'The real question is this—Does being in space and outside the body imply that the extended and external object is outside of mind, and other than one of the series of conscious states?' And then he proceeds to accuse Kant of a confusion between the idea of externality *to* consciousness, and the idea of externality in the sense of existence *in* space (which, it may be remarked in passing, Kant has expressly and clearly distinguished, *Kritik*, ed. Rosenk, p. 299), because he only attempts to show that the explicit consciousness of the external object in the latter sense is prior to the explicit consciousness of the self as an object, and does *not*

attempt to show that there is an existence of things in themselves independent of consciousness. But if Mr. Balfour had understood what Transcendentalism implies, he would have seen that its effect is to make the latter problem meaningless, and to substitute the former for it. (*Cf.* Mr. Green's article in *Contemporary Review*, Dec., 1877, p. 30.) No doubt there is an occasional uncertainty in Kant's language, especially in the first edition of the *Kritik*."

Before I criticise this passage, I must disclaim any intention of carrying on Mr. Balfour's controversy with Prof. Caird. The article to which Prof. Caird is replying was addressed to a doctrine called Transcendentalism, conceived as common to Kant and a certain number of contemporary English writers, including Prof. Caird. Now that there is such a common doctrine I do not doubt; but I have not been able to gather from Mr. Caird's work on Kant any such knowledge of its principles or method as would justify me in attempting to criticise it closely.

At present, therefore, I am only concerned with Mr. Caird as an expositor of Kant. In this capacity I understand him to affirm (1) That Kant held a doctrine which may properly be called Idealism, because he regarded the question whether or not there is an existence of things in themselves independent of our perception of them as "meaningless"; and (2) that in his "Refutation of Idealism" he substituted for this the question whether or not we have an explicit consciousness of objects in space outside our bodies prior to the explicit consciousness of self as an object. Neither of these positions appears to me tenable.

As regards the first point, I quite admit that great latitude ought to be allowed to a philosopher in choosing the precise signification that he will attach to such a term as Idealism. Still I think that the word will inevitably be understood by English readers to denote a doctrine "concerning the existence of things"; and in this sense Kant emphatically and reiteratedly repudiated the appellation. The following passages from the *Prolegomena*, § 13, Remarks 2 and 3, are surely sufficiently explicit (I quote from Mr. Mahaffy's translation):—

"Idealism consists in the assertion, that there are none but thinking beings, all other things, which we think are perceived in intuition, being nothing but representations in the thinking beings, to which no object external to them really corresponds. Whereas I say, that things as objects of our senses existing outside us are given, but we know nothing of what they may be in themselves, knowing only their phenomena, that is, the representations which they cause in us by affecting our senses. Consequently I grant by all means that there are bodies without us, that is things which though quite unknown to us as to what they are in themselves, we yet know by the representations which their influence on our sensibility procures us, and which we call bodies, a term signifying merely the appearance of the thing which is unknown to us, but not therefore less real. Can this be termed idealism? It is the very contrary."

He adds "I should be glad to know what my assertions must be in order to avoid *all* idealism. . . . my protestation against *all* charges of idealism is so valid and clear as even to seem superfluous, &c". And to meet the objection that he has himself called his theory

"Transcendental Idealism," he explains that "my idealism concerns not the existence of things (the doubting of which however constitutes idealism in the ordinary sense) *since it never came into my head to doubt them*, but it concerns the sensuous representation of things." I do not see how Mr. Caird can hold that Kant when he wrote these passages regarded as "meaningless" the question whether "there is an existence of things in themselves independent of consciousness"; nor how he can say that there is here any "uncertainty in Kant's language"; and I do not understand him to hold with some German writers that Kant changed his opinion on this fundamental point between 1781 and 1783, or misrepresented his real conviction out of a base regard for his reputation.

But secondly, if any one, with the passages above quoted from the *Prolegomena* before him, will consider carefully the 'Refutation of Idealism' in the second edition of the *Kritik*, I hardly see how he can avoid the conclusion that Kant in the latter passage does confound "the idea of externality to consciousness" and the "idea of externality in the sense of existence in space". He states as the 'Theorem' to be proved—"The simple but empirically determined consciousness of my own existence proves the existence of external objects in space"; and then proceeds with the proof, as follows:—

"I am conscious of my own existence as determined in time. All determination in regard to time presupposes the existence of something permanent in perception. But this permanent something cannot be something in me, because my very existence in time can only be determined through this permanent something. Therefore the perception of this permanent is only possible through a *thing without me*, and not through the mere *representation* of a thing without me. It follows that the determination of my existence in time is possible only through the existence of real things which I perceive without me."

It is evident that the "Ding ausser mir" in the third sentence of this 'proof,' contrasted as it is with the "blosse Vorstellung eines Dinges ausser mir" is identical with the "unbekannter aber nichts desto weniger wirklicher Gegenstand" of the passage from the *Prolegomena—i.e.*, it is a thing external to consciousness: while again it must be identical with the "Gegenstand in Raum ausser mir" of the 'Theorem'. The two notions of 'externality in space' and 'externality to consciousness' have here run into one in Kant's mind—however true it may be that he has elsewhere "expressly and clearly distinguished them".

HENRY SIDGWICK.

ALLEGED SUICIDE OF A DOG.

AN account of the great grief shown by a chimpanzee at the death of its female companion, which has recently gone the round of the newspapers, has been the occasion of speculations concerning the very human passions of some animals, and of stories of actual suicide by them in certain instances. One Journal believes there is a well-authenticated story of a cat which, having had its kittens drowned,

was so grief-stricken at its bereavement that it deliberately committed suicide by strangling itself in the fork of the branch of a tree. The writer's experience of life in the country cannot have been very great, or he would have heard of other instances in which cats running up trees after birds had slipped and, being caught in a forked branch, had been strangled. Had he extended his inquiries he might even have become acquainted with instances in which the same fate had overtaken human beings. Stories of the kind require to be severely sifted, and ought not to be accepted unless the narrator either shows by his narrative that he has taken every pains to avoid the common fallacies of observation and inference, or has been strictly cross-examined by some one who, being more apt to doubt than to believe, is alive to, and on his guard against, these fallacies.

Some years ago a very striking story of suicide by a dog went the round of the newspapers. It was of this kind:—The dog had been taken from its home to another home where it was exceedingly unhappy; it returned after a time to its old home, whining piteously for admission, but was driven away; thereupon it went to a river which was close by, was seen to enter the water and to deliberately lay itself down in it, and was drowned. Having expressed to Dr. Lauder Lindsay of Perth, who has been engaged for some years upon a work on the subject of *Animal Intelligence*, my disbelief that there was any suicide in the case, if it was strictly inquired into, he was kind enough to put me in communication with Dr. Brown of Rochester, who was in a position to throw light upon it. Dr. Brown, with great courtesy, gave me the following account of the matter:—

7th April, 1875.

"Case of 'Bruce' the Upnor dog that drowned itself about eight years ago in March or April.

"The owner was Mr. Home of the King's Arms, Upnor, afterwards of Frindsburg. Mr. Home had the puppy whilst residing at Upnor. The dog did not like its master's removal to Frindsburg and always appeared to be attached to the old house. The mistress was extremely fond of the dog.

"The dog's mother was a spotted brown and white bitch used for hunting rabbits; the father was a water-dog—a retriever or something of that sort. 'Bruce' usually disliked water, for it was thrown into the water when very young. It had a white body with silvery long hair and brown head and ears. The eyes were red and the character was somewhat ferocious, for it would not allow any one to touch it except its mistress.

"The mode of death was as follows:—There was a supper given and a sucking-pig was eaten. The dog had some of it, and appeared to have got a bone into its throat or to have been poisoned; but it was not known for certain what had happened. It was ill for eight days, eating nothing, and vomiting. The mistress fed it with gruel in a spoon. Several times the dog would put its head into a pail of water and let the water get into its throat and run out again: it would not drink properly. At the end of eight days the mistress sat up all night with it, and at five in the morning she let it out of doors: she sat up with it to prevent it from tearing the paint-work. The dog at once proceeded to Upnor to the old house. The master's mother who was residing in this house heard it, but would not open the door and let it in, being afraid of it because of its illness, for people said that it was mad and ought to be drowned. The dog went to the river at

six a.m. and walked into the water, and lay down in the water, and so was drowned. The witnesses were Hobb, a waterman at Upnor, now alive, and Tanner, now dead. They were in a lighter close by.

"The mistress does not believe that the dog committed suicide. She thinks that it went into the water to cool its throat, as it was accustomed to do in the pail of water. She related these facts to me on April 7th, 1875.

"FREDK. J. BROWN, M.D.

"The dog got nearly blind during its illness."

Such is an accurate account of what happened, and it evidently does not warrant the conclusion of suicide. The owner of the dog, as Dr. Brown informed me in a subsequent letter, had no doubt that the death was due to exhaustion from disease and want of food; and that was Dr. Brown's own opinion. He had known other instances in which animals suffering from disease and dying in consequence of it, or with the concurrence of some accident in their exhausted state, were popularly supposed to have put an end purposely to their sufferings. When he was a boy he resided near the Medway. The sheep fed on the marshes suffered occasionally from staggers, a disease of brain produced by the presence of a hydatid cyst in it; and they were sometimes found drowned in a ditch which surrounded the field, having staggered about and fallen into it in their vertigo. A far more probable explanation than suicide—indeed the explanation which the shepherd gave of the matter.

It is quite possible that an animal in a state of excitement or delirium from pain and illness may make a frantic rush which issues in its death, just as a human being may do; but that is quite a different thing from a distinctly conceived and deliberately perpetrated suicide. Of such an act by any animal below man we are yet in want of satisfactory evidence.

HENRY MAUDSLEY.

Since the foregoing was written I have met with the following story in a newly published book on *The Relations of Mind and Brain* (p. 140), by Professor Calderwood :—

"I have known two very striking cases of the speedy death of a dog under grief. In one case narrated to me by the owner of the animal, a dog had occupied itself, when the family were at church, with pursuing and killing the poultry belonging to the household. After having killed them it carefully buried them one by one in different parts of the garden in which the pursuit and slaughter had taken place. Shortly after the return of the family, the absence of the hens was remarked. Search was made, but no trace of them could be found either about the premises or in the neighbourhood. At length the attention of some one was arrested by evidence of the ground in some parts of the garden having been disturbed. The soil was turned up, and the hens' bodies were found. The dog was taken to the garden, and immediately confessed his guilt. His master took him to the library, and, having shut the door, began a reprimand after this fashion :—'What a wicked thing you have done in murdering the hens! You are a minister's dog, and should have been an example to other dogs, instead of doing such a thing as this. Then, this is Sabbath-day, and the deed is all the worse on account of the day on which it has been done.' Thus admonished, the dog was put out at the door, and the door

shut. Next morning he was found dead. A coroner's inquest was not held, but a veterinary surgeon was consulted, and he gave the verdict, 'Died of a broken heart'. He said had the animal been well punished, and then received into favour again, all would have been right; but he could not bear to be treated as an outcast."

Dr. Calderwood tells us in a footnote that he had this story from the Rev. Dr. Robertson of Irvine, "distinguished equally for his high appreciation of art and his power in preaching the gospel, and known to all his friends as one peculiarly fond of animals". Therefore he does not seem to have thought it necessary to make any more minute inquiries into the circumstances of the dog's sin and death: to have satisfied himself, for example, whether it was the dog's first offence of the kind—whether, in fact, dog, unlike man, becomes *repente turpissimus;* whether the housewife, or whoever had charge of the poultry, took the same view as the kind-hearted doctor of the efficacy of moral reprobation to change the heart of a dog and to turn it from the error of its ways; whether the veterinary surgeon made a post-mortem examination of the dog before giving evidence as an expert as to the cause of its death; and if so, whether the examination was thorough, that is to say, included not only an examination of the heart and other organs but a chemical examination of the contents of the stomach. That a sinning dog can feel shame and remorse, when it is found out, cannot be doubted; and it may be that it will go out sorrowful from its offended master's presence and die of a broken heart—for my part, I do not doubt that a Scotch Sabbath-breaking dog would—if only the moral rebuke were accompanied or followed by a sufficient dose of arsenic.

H. M.

EXPERIMENTS WITH HUMAN BEINGS.

Dr. G. M. Beard of New York, whose remarkable essay on the various forms of the state of Trance was summarised in MIND VIII., p. 568, has recently contributed to the N.Y. *Popular Science Monthly* (March and April, 1879) two papers rather ambiguously entitled "Experiments with Living Human Beings," in which he seeks to formulate the sources of Error that have specially to be guarded against in all investigations where the human subject is concerned. His study of Trance and related nervous conditions had before led him to consider the bearings of neurological science on the value of Human Testimony, and the Sources of Error now noted have, he thinks, never been properly taken account of hitherto just because they lie for the most part in the nature of the nervous system which has been so little understood. While the elements of error in experimenting with inanimate objects have long been formulated by Bacon and others, the special elements of error in experimenting with human beings have not been made the subject of conscious and exhaustive analysis, but have been eliminated by mere instinct when they have been eliminated at all. Dr. Beard makes six of them, and insists that in every case they must be systematically and, if possible, simultaneously guarded against;

to overlook one of them in any research being as bad as overlooking them all.

The enumeration is as follows :—

I. The phenomena of the involuntary life in both the experimenter and the subject experimented on.

II. Unconscious deception on the part of the subject experimented on.

III. Intentional deception on the part of the subject.

IV. Unintentional collusion of third parties (audiences, witnesses, bystanders, assistants seen or unseen).

V. Intentional collusion of third parties.

VI. Chance and coincidences.

To guard against I. and II., there are two things necessary for the experimenter :—

(1) A general knowledge of the phenomena of the involuntary life, including the action both of mind on body and body on mind, in health and in disease, and especially of the real nature of Trance, the state in which the involuntary life culminates.

(2) The subject experimented on must always be *deceived* in the experiments in such a way that the involuntary action of the mind or body cannot come in and destroy the experiment, namely thus—

(a) By doing something when the subject believes that the experimenter is doing nothing.

(b) By doing nothing when the subject believes that the experimenter is doing something.

(c) By doing something different from what the subject believes is being done.

Sources III., IV., V. can be guarded against only by systematic, orderly, exhaustive deception on the part of the experimenter; and no account whatever is to be taken of the honesty of the subjects in other respects, the absence of assignable motive for deception, &c.

The remaining source of error (VI.) is liable to vitiate the research of educated men especially, and more perhaps than any other of the six, excepting always the involuntary action of mind on body. In its direct and practical bearings on experimental research and the principles of evidence, the subject of chance and coincidences has never received sufficient attention from men of science, and the very development of the mathematical side of the philosophy of chance has had the effect of misleading amateur experimenters and reasoners to employ mathematical estimates in circumstances where they do not apply.

In closing his observations, which are illustrated throughout by very pertinent references to recent forms of credulity that have manifested themselves as much among scientific men (from want of special enlightenment) as among common people, Dr. Beard remarks how the growth of medical science has been retarded by the want of systematic recognition of these various sources of error. In trying all new remedies and systems of treatment, the aim of the scientific physician should be to deceive the patient (when this is possible) so thoroughly

that whatever effects are obtained must be known positively to be the action of the treatment or of nature.

Dr. Beard starts now, as before, with the assumption, in all these matters, that no human being ever has any faculty different in *kind* from what is to be found in all other people. Those who do not make that assumption or who are not in the same way careful to exclude the elements of error above noted, will be prone to judge otherwise than Dr. Beard of such phenomena as have of late been gravely—more than gravely—reported from Leipsic.[1] Dr. Hermann Ulrici of Halle, for example, has been thereby led to declare with his whole philosophical authority, in an article just published in his own journal (*Zeitschrift für Philosophie, &c.*, LXXII., 2), that "so-called spiritism" has at last become a scientific question; meaning that the facts and their conditions must all have been exactly as they are described by a professor so eminent, so high-minded, &c., &c., and that philosophers can no longer hesitate to seek for the special objective cause of such remarkable phenomena. For himself, he rejects as inadequate the supposition of special natural powers in particular men to produce such astounding dynamic effects; and also he cannot, on Kantian principles, allow the reporter's brave theory that the phenomena are all quite natural and intelligible if only space is allowed to have its long-sought fourth dimension. He can but regard as most probable that they are really the work of departed "spirits" as popularly believed; and the reason, he farther suggests, why the manifestations are particularly frequent now-a-days may be that never in history has human faith in a future life become so weak and stood so much in need of demonstration from 'beyond the veil'. For there are now, he sadly reminds us, no virgin-peoples left to right the faith of decaying civilisation,—as once before, in a time of like peril, European faith and morality were restored by the Northern nations who made an end of the declining empire of Rome.

EDITOR.

VIII.—CRITICAL NOTICES.

The Colour-Sense: Its Origin and Development. An Essay in Comparative Psychology. By GRANT ALLEN, B.A. London: Trübner & Co., 1879. Pp. ix., 282.

Psychology must be said just now to be in a fluent condition. The old conception of the science as limited to the introspective study of the human mind is fast disappearing, and it is as yet difficult to say what new shape this department of knowledge is destined to take. It seems plain that a purely human psychology is to be supplemented by an animal or comparative psychology. It is equally plain, too, that this far larger region of mental life will have to be studied in close

[1] Fr. Zöllner: *Wissenchaftliche Abhandlungen*, Th. I. II. Leip.: Stackmann, 1878.

connexion with its physiological conditions. This of itself would serve so to widen the scope of the science as to leave its boundaries very imperfectly determined. But in addition to this it seems probable that, in accordance with the evolutionists' way of looking at things, mind will henceforth have to be studied genetically, as an accompaniment of animal life which has been slowly evolved by the action of organic laws. This view of psychology appears well nigh to efface all distinct boundaries between it and other sciences. For as soon as we begin to enquire how any widespread and elementary mental function originated we find ourselves necessarily involved in a consideration of a number of questions which have hitherto been supposed to belong exclusively to the sciences of natural history. This being so, the psychologist who attempts to explore these wide outlying fields must, it is clear, be endowed with very various scientific knowledge. And even if this is present his task will be necessarily one of great difficulty. For first of all it may happen that the science from which he needs to borrow his premisses is insufficiently settled and fixed, in which case he will hardly be able to avoid slipping from the stand-point of a psychologist to that of a naturalist. And even if he should escape this danger he will in any case have to accomplish the difficult feat of co-ordinating and organising the results of distinct lines of scientific research. To do his work completely he will have to bring to bear on his special problem a number of converging arguments drawn from sciences as distinct as zoology, comparative anatomy and even geology.

These remarks have been suggested by the appearance of a book which may be said to be the first finished essay on a special subject in the new and wider psychology which has just been opened up. Mr Grant Allen made his mark two years ago as one well skilled in the art of applying the doctrine of evolution to psychological problems. His *Physiological Æsthetics* (reviewed in MIND VII.) was in every way remarkable as a serious attempt to throw light on one of the most intricate branches of the higher psychology, namely, the science of taste, by help of simple organic laws whose sway reaches down to the most elementary forms of animal life. In his new work he selects a narrower theme. He takes one particular mode of sensibility, the colour-sense, and seeks to trace the laws of its origin and development in the animal series. In doing this he gives us little if any psychological analysis. The subject is too simple and familiar to need this. He also does not go very much into the anatomical and physiological conditions of the sensibility, the history of which he seeks to ascertain. Physiology cannot tell him enough of these conditions to be of much practical service. But he has much to say about the varieties and distribution of plants, and the structure and functions of flowers and fruits, subjects belonging to botany and vegetable physiology. In thus seeking his data in a foreign region, Mr. Allen is careful to disclaim the character of a specialist. "I enter the lists (he says) as a comparative psychologist, not as a biological student. I do not pretend to discover facts of botany or zoology at first hand. I accept

them as data from the lips of competent specialists." Yet in point of fact the uncertainty of much of the reasoning of naturalists drives him again and again to compete with them on their own ground and to group facts and to draw inferences from them quite in the manner of Mr. Darwin and Mr. Wallace themselves. In truth it may be said that, while the ultimate aim of Mr Allen's work is a psychological one, the greater part of its argument is purely biological. The value of the facts and the legitimacy of the inferences drawn from them can only be appreciated and tested by trained naturalists, and some of these have already shown that they are fully aware of the relation of Mr Allen's book to their own special department of research. This being so, there is little to be done in this place except to give a summary of Mr. Allen's argument, reserving criticism for the few points where properly psychological questions come to the front.

Mr. Allen aims at a full and exhaustive presentation of his subject. So he begins with a clear and popular account of the objective side of colour or aether-waves of different rates of vibration and of their probable action on developing organisms. He seeks to account by the known principles of evolution for the presence in animal organisms of nervous structures related to light-waves and heat-waves and tne absence of structures answering to the chemical rays of the spectrum. Passing from the objective stimulus in colour-sensibility to the organ, he endeavours to establish a connexion between the functions of locomotion and vision. It is only animals capable of locomotion and so of approaching their prey and shunning their devourers that would derive any advantage from the possession of a visual organ. The development of the organ proceeds by way of three stages—the growth of sensibility to degrees of light, the acquisition of the power of perceiving form by means of a plurality of isolated nervous elements, and the genesis of nervous structures fitted to discriminate qualitative differences in light, that is to say, the colour-sense. With respect to this last mode of sensibility our author points out how very little is certainly known as to the underlying anatomical conditions. There is very good reason for conjecturing that the retinal cones are specially concerned in colour-perception, though this supposition requires further support, while the way in which the various kinds of rays act on the nervous structures is wholly shrouded in obscurity.

So far Mr Allen has been laying down the most general truths of his subject. He now passes to consider the special circumstances in the life and surroundings of animals which have served to call into existence and to strengthen the colour-sense. From this point the reasoning is almost exclusively borrowed from natural history. Mr Allen is an out-and-out Darwinian, and thinks it absurd to imagine any structure appearing in the course of animal evolution except in answer to some pressing need of the animal's life and according to the law of natural selection. He first of all takes up the colour-sense in insects, and seeks to establish the proposition that the development of this faculty proceeded *pari passu* and in the closest correlation with

the development of coloured appendages or flowers in plants needing to be fertilised by insects. In developing this argument, Mr. Allen has to enter into a number of questions of organic chemistry, geology, &c. Whatever the precise scientific value of this reasoning, one cannot but admire the ingenuity he has shown in directing his various lines of argument towards a single result. Mr. Allen has a very interesting way of presenting the processes of organic life, as viewed in the light of natural selection, under the guise of consciously pursued objects. There is no doubt a danger of mistaking this figurative mode of presentation for plain description, a danger which Mr. Butler, in his recent works, either falls into or would emphasise by means of ironical exaggeration. Yet, as Mr. Allen elsewhere says, the doctrine of evolution teaches us that things have come to pass pretty much in the same way as though some design had been consciously aimed at; and he may therefore justify his habit of talking of plants in their development as creatures endowed with ordinary human foresight and desire for life. Mr. Allen completes his account of the colour-sense in insects by recapitulating the facts of mimicry in insect-hues dwelt on by Messrs Darwin and Wallace.

Just as in insects the colour-sense was, according to our author, first developed as giving its possessors an advantage in finding their food stored up in flowers, so it first appeared in birds and mammals as a concomitant of the development of fruits. In a very happy way the fruit-bearing plants and the animals which find their nutriment in this stored-up energy are shown alike to profit by the arrangement. Mr. Allen, in the case of the lower vertebrates, seems disposed to allow something to the direct action of the environment in the genesis of the colour-sense. Might there not be a similar direct influence at work in the case of insects and birds also?

Dealing next with the community of taste between flower-feeding and fruit-eating species, Mr Allen touches on points of considerable psychological importance. He by no means thinks that the liking for bright pure colours which characterises these two classes is a universal and necessary form of the colour-sense. As in his *Physiological Æsthetics*, so here, our author reasons as if nature were able to develop nervous structures fitted to respond pleasurably to any conceivable mode of external excitation. Thus he tells us that birds might just as well have been made to take pleasure in dingy colours as in bright ones. And he supposes that the colours of carrion which are ugly to our eyes are intrinsically pleasing to the eyes of the carnivores. Mr Allen is very firm in maintaining that the pleasure in all these cases is not due to association. It is direct and sensuous, being the result of the stimulation of the optic fibres and centres which in the case of the animals here spoken of must be conceived as of large calibre. At the same time our author allows that, since the liking for colour sprang up in connexion with life-serving actions (the pursuit of food), there would be developed "numerous nervous connexions in the central system, whereby the sight of such coloured objects might set up the necessary movements for obtaining the booty."

What does this mean, except that the impression of colour in this stage of animal existence would be accompanied by nascent impulses of prehension, &c., together with faint forms of the gustatory feelings attending these actions? It seems to me that Mr. Allen has here needlessly opposed himself to the doctrine of association. The modern associationist fully recognises that the secondary associated elements of pleasure are often inseparably bound up with the direct or primary, and that they doubtless answer to just such nervous connexions and outlets for nervous energy as our author is here obliged to assume. But whether we use the term "association" or not, the question how much of the pleasure of colour in man or in the lower animals is direct—due to the action of properly optical structures, and how much indirect and extra-optical is of the utmost importance, and I cannot think that Mr. Allen has finally settled it. Thus a good deal might be said for the proposition that the pleasurable excitement which one of the carnivores manifests at the sight of carrion is almost wholly indirect and connected with a nascent excitation of the organs employed in eating. Mr Allen allows, indeed, that in one case the indirect element may wholly preponderate over the direct, when he refers the antipathy of the turkey-cock to scarlet to "an effect of sexual jealousy, as the red would be ancestrally associated in his mind with the wattles of a rival" (p. 123). It may be added that the fact of a particular colour being very impressive and even fascinating is no proof of its being highly pleasurable. It seems to me that the writer has not sufficiently distinguished between the discriminative and the emotional side of the sensibility he is here considering. I am disposed to ask Mr. Allen to reconsider the question whether the community of taste for colour in the animal world may not be wider than he here supposes, and whether this fact does not point to certain limitations in the powers of nature with respect to the production of colour-percipient structures. Does it not seem probable, for example, that as soon as specific elements answering to the various kinds of luminous rays are evolved it remains a law of nervous organisation that the animal should prefer brilliant to dingy colours? And may one not go further and ask whether this evolution of colour-percipient structures itself was not in some way a necessary consequence of the development of optical structures discriminative of degrees of luminosity after these had reached a certain degree of delicacy? We know too little of the physiological facts of the case to answer this question, but at least it should be entertained as a possible explanation of the phenomena.

We must pass over the chapters on the supposed effects of the colour-sense on the colours of animals themselves by the play of sexual selection and the acquisition by natural selection of protective colouring, and hear what Mr. Allen has to say respecting the colour-sense in man. This section of the work, though rather short in proportion to the other sections, gives an interesting account of the probable development of the taste for colour in our race. Mr. Allen insists on the fundamental connexion of this taste with our original frugivorous

habits and instincts. Children show this when they put bright coloured objects to the mouth. (By the way, do they not put other objects to the mouth quite as often as coloured?) Next in the order of time to the taste for brilliant fruits comes the liking for flowers, feathers, precious stones, &c. As the taste develops it becomes more detached from life-serving functions and more disinterested. Mr. Allen further traces the order in which the various colours have impressed human sensibility. The taste for red is the earliest, while the feeling for green is a comparatively recent acquisition. This differs from the order assigned by Dr. Magnus, who regards the feeling for colour as following the order of the spectrum from the most energetic to the least energetic rays. Here again I think Mr. Allen argues rather hastily from impressiveness to pleasurableness. It is hardly safe, for example, to make the degree of fascination of red or yellow light for moths, &c., the measure of its pleasurable quality. In this part of his argument Mr. Allen is directly confronted with the assertion of Dr. Magnus and Mr. Gladstone that the faculty of discriminating colours is a late attainment of our species and did not exist among the Homeric Achæans, the Hebrews, or our Aryan ancestors in Asia. Our author sees that this idea is in direct opposition to the teaching of evolution, according to which much larger periods than those represented by history would be necessary for the development of a distinct faculty such as this. But not content with this *à priori* objection he seeks to refute the theory by facts, and he has gone to work in a very thorough fashion. Thus he has ascertained by means of questions sent to competent observers in all parts of the uncivilised world that existing savage races have a colour-sense identical with our own. He reasons, too, from the relics of primitive art that this faculty existed before it is said to have been wanting among the Hebrews and Achæans. Finally he seeks to account for that poverty of the colour-vocabulary among the Achæans, &c., on which Dr. Magnus and his supporters exclusively base their hypothesis, by general psychological considerations which are illustrated by an interesting examination of the colour-names employed by modern English poets. So far as I can judge, Mr. Allen proves his case most conclusively.

I trust that this brief outline of Mr. Allen's work will show that the subject was one which well deserved the elaborate monographic treatment which he has given it. The general reader who follows this interesting history of a particular sense will probably get a clearer and more serviceable idea of the doctrine of evolution and its methods of reasoning than he could obtain from wider and more systematic treatises. For the psychologist, too, this way of working out limited problems in the history of mind has a special value just now. In the present state of our science what we more particularly want is the determination of such special questions as that here handled by Mr. Allen. Such questions are easily manageable, and can be dealt with by a reference to a wide assemblage of well-ascertained facts. And their solution not only contributes new and stable propositions to the science, but serves indirectly to suggest more general principles of

mental development. These desirable results will, I think, be attained by Mr. Allen's volume. Though many parts of the argument are hypothetical, he has on the whole, by means of a cumulative chain of reasoning, succeeded in establishing the wide-spread existence of the colour-sense in the animal world, and in determining some of the main features of its gradual development.

JAMES SULLY.

The Metaphysics of John Stuart Mill. By W. L. COURTNEY, M.A., Fellow of New College, Oxford. London: Kegan Paul & Co., 1879. Pp. 156.

This is an examination of Mill's chief metaphysical positions as set forth or implied in his different works, six topics being selected for discussion, namely, Consciousness, Body and Mind, Primary Qualities of Matter, Causation and Uniformity of Nature, Mathematical Axioms and Necessary Truths, General Ideas. A short introductory sketch of the historical evolution of Modern Philosophy, with a more detailed consideration of Mill's particular Antecedents, and a few words of Epilogue, make up the other contents of the volume.

The author who seems implicitly to follow Prof. Green in philosophy, does in fact aspire to substitute plain speech as regards Mill for his leader's method of innuendo. Sharing the opinion that the English mind touched its high-water-mark in philosophy a whole century ago, he seeks to make it good not by oblique hints but by showing the precise particulars in which so much later a thinker as Mill, who is thought by many and doubtless thought himself to be more advanced, falls below the level then attained by Hume: and this is clearly the right way to set to work for the spiritual good of a generation that has had the misfortune to be nurtured on Mill rather than Hume. Nor, as it happens, could the most devout believer in Mill find any fault with the tone of his present depreciator. We have here a perfectly sober attempt from one intellectual point of view to estimate the value of Mill's achievement from another; and the critic is even anxious to make plain, as far as he can, the exact nature of his own philosophical assumptions, so that the reader may fairly judge the issues of the conflict.

The interest of the first part of the work lies in the sketch of Mill's immediate antecedents. Assuming his aim to have been the rescue of mathematics and physics from the wreck of human knowledge wrought by Hume's perverse application of true experientialist principles, the author finds that he was influenced chiefly by three philosophical movements belonging to the interval that separated him from Hume—the Common Sense movement of Reid and his successors, the English Psychological movement continued after Hartley by James Mill, and the Positivist movement of Comte; while from the great German movement by which it behoved him most to have profited, he learned nothing at all. There is truth in the sketch, marked as it is by an honest desire to seize the varied features of Mill's

essentially impressionable intellect, but the author seems hardly familiar enough (at first hand) with the movements that had, as he says, an effect on Mill to be able accurately to appreciate its nature and extent in the different cases. As to the fundamental assumption, no proof whatever is adduced that Mill in trying, among other things, to give a philosophical *rationale* of mathematics and physics, had Hume's solvent criticism particularly in view, or was moved by anything but a natural desire, in an age of scientific progress, to apply to the explanation of the best-organised bodies of human knowledge the theory of its origin which came down to him through his father from Hartley, Berkeley and Locke. There is an interesting statement of Mill's opinion on Hume, now first disinterred by Prof. Bain in this number of MIND (p. 377), which at first sight may be thought to lend a certain countenance to the view often expressed before that Mill set himself to do in a positive constructive spirit a work that Hume neglected for the sport of pricking the bubbles blown by metaphysicians; but the reference is to the historian rather than the philosopher, or, at all events, comes to very little, and I can find no real evidence anywhere that he ever was much influenced one way or another by Hume. That he should not, on the other hand, have been at all influenced by the Kantian movement appears remarkable only when it is forgotten what the actual conditions of philosophical thinking were in England during the whole generation when he was coming to maturity. Mill published his *Logic* in 1843 at the age of 37. After that time and that achievement he might and did add one thing or another to his acquisitions, but he was not likely to have his general philosophical view materially changed. Now what likelihood was there of his learning much about Kant or anything about Hegel in the earlier years?[1] Even Hamilton, in far more favourable

[1] There was indeed, already then, accessible in English the very elaborate exposition of Kant's doctrine contributed to the *Encyclopædia Londinensis* in five articles ('Kant,' 'Logic,' 'Metaphysics,' 'Moral Philosophy,' 'Philosophy') by Thomas Wirgman from 1812 to 1825; but the labours of this most enthusiastic of Kantian students are hardly more unknown to the present generation than they seem to have been unheeded by his contemporaries. Those who in recent years have succeeded at last in forcing Kant upon the attention of English readers, apparently know nothing of the heroic efforts that were vainly spent towards that end more than fifty years before. Mr. Mahaffy alone seems as yet to know of his predecessor's name: see a paper on 'Kant and his Fortunes in England,' lately contributed by him to the *Princeton Review*, where he speaks in passing of "an article in the *Encyc. Lond.* in 1821 by Wirgman, who was considered as an enthusiast about Kant"—apparently referring to the article on 'Metaphysics' (which however was published as early as 1817). This article contains a complete translation of the *Prolegomena*, much superior to the later translation by Richardson with which Mr. Mahaffy connects his own. Wirgman's exertions deserve some day to be fully acknowledged. He illustrated his various expositions (except the 'Metaphysics') with copperplate diagrams that exhibit the main doctrines of Kant's philosophy in a very striking manner.

circumstances, had (or shows) almost no knowledge of Hegel and a merely general knowledge of Kant. Because in the present generation any junior student, without knowing German, can make himself acquainted with the whole course of modern German philosophy we are apt to suppose that it was always so, and to judge unfavourably of Mill's range of culture which did not include such knowledge ; and the mistake is the more easily made because the time of Mill's effective influence on his contemporaries was a good deal later than the appearance of his *Logic* and coincided with the period of wider and widening philosophical information. But upon any fair appreciation of the actual circumstances of Mill's intellectual development, the most there is room for is a feeling of regret that one who had such a power to influence his generation should not have been familiar with all the currents of thought that were destined to affect it. And even this regret is not unmixed with satisfaction, since the very limitations of Mill's philosophical view give it a peculiar historical value. It is well that a serious effort should once have been made to account for human knowledge and especially science from the point of view of individualistic experience. Nor is it more remarkable that this task should not have been attempted till the time when the point of view was about to become discredited than it is that the speculative spirit should have blazed up higher than ever before in Hegel after the course of modern philosophy down to Kant had consisted chiefly in a movement of more and more thorough conciliation of the two opposite principles of Reason and Experience. If Mill's Experientialism was a mere survival out of due season, what are we to say of Hegel's Rationalism ?

In his critical chapters Mr. Courtney does not make many points against Mill that have not been made by others before, but his points are in general clearly and always neatly made, and the criticism may be profitably read by anybody who is disposed to think that Mill has said the last word on the topics in question. That the case for Experientialism quite breaks down when Mill's doctrine is proved defective or inconsistent is more than the author contends for. Sometimes he even, by indicating and leaving unassailed the position of later experientialists, appear to suggest that it is rather Mill's individualism that is at fault than the general philosophical attitude which so many thinkers of modern times have found themselves more and more driven to take up ; but more probably the colourless references to later phases of Experientialism are to be understood rather as suggesting a measure of Mill's backwardness in relation to his age than as meaning anything in the way of approval. Remarks like that at p. 62—"So little is it true that association explains thought that the reverse is the case : it is thought which explains the possibility of association" ; or like that at p. 92 (often repeated)—"Successive sensations can give rise to the conception of a succession of sensations only if there be a mind present to each sensation, holding them in due relations to one another and transforming into permanencies the perishing series of sense-impressions" ;—bear in reality as much

against the later and wider as against the earlier and narrower interpretation of Experience. And the reply, it may at once be added, which they are most likely now-a-days to evoke from the experientialist, is simply that they must not be allowed to interfere with the work of psychological analysis, or held to be a bar to such theorising upon psychological data as Mill, to the best of his lights, essayed. Their value, ever since Kant first began to give them their current mode of expression, has lain in the warning they contain for the psychological philosopher (or philosophical psychologist) as to the full depth of the problem of knowledge. Of themselves, they give no insight. Are "sensations" to which a "mind" must be present for holding them together, mental or not-mental? If not-mental, how come they to pass into mental forms? If mental, then "mind" is already given in "sensation," and there is not anything necessary for the explanation of knowledge beyond a full enumeration of psychological factors, all equally phenomenal with (however otherwise different from) so-called bare sensation. Or at all events it is only through foregone psychological investigation, pursued in the spirit of the positive sciences, that the philosophical question can be determined. This is the true note of Experientialism late or early.

We may select as a fair specimen of Mr. Courtney's performance his discussion of Mill's view of the genesis of the notion of Extension. Here he can directly confront Mill with Hume and here he is dealing with a subject that above all others has engaged the attention of recent psychologists. On the whole, his opinion seems to be that the later psychology leaves the question very much where it was, and that Mill in particular, though fairly facing the great difficulty of transforming a succession of sensations in time into an order of co-existence in space, does in reality advance no whit beyond Hume and is rather less deft than his artful predecessor in covering up the weakness of the "sensationalist" position. Unfortunately, Mr. Courtney shows, by his remarks and references at p. 96, that he knows next to nothing of the later scientific investigations (chiefly German) which nobody should now touch the question of Space without having mastered; and even as regards Hume he betrays a certain want of intimate knowledge, or at anyrate he misses the points on which it is of real interest to make a comparison between him and Mill. Hume, he tells us, proposed to derive the idea of extension from sensations of colour but, with characteristic cleverness, turned the mere sequence of sense-impressions thus obtained into the required co-existence of coloured parts by quietly saying that the eye gives the impression of *coloured points disposed in a certain manner*. On the other hand, Mill, as we know, first urges the importance of the muscular sense in conjunction with touch for the generation of the notion of extension, but, as he thinks that we can never thus get beyond a succession of sensations in time, he would explain the element of co-existence in the case by having recourse at last to a power in the eye of taking in a manifold of sensations

practically at once, the action of the ocular muscles proceeding habitually 'in a time too short for computation'. Now whatever may be said against the position thus taken up by Mill—and he certainly (as it seems to me) lays himself open to the charge of asserting something very like an original intuition of space after all—this is to be said for him, that he seeks to allow for the respective contributions of sight and touch to the genesis of the notion, that he thinks of the two as having to be somehow equated, and that he accentuates the presence of the muscular factor in both cases; and these, it must be allowed, are considerable advances beyond the position of Hume as stated by Mr. Courtney. But, in point of fact, the position of Hume is very insufficiently stated by Mr. Courtney. Hume does by no means overlook touch as equally with sight a source of the idea of extension; he does not forget that visible and tangible extension have to be equated (though he very coolly assumes that there is no difficulty in the matter—as if Berkeley had never been!); and he even signalises the psychological fact of a 'sensation of motion' (though he strangely connects it only with touch—never with sight, and labours with a most perverse ingenuity to prove it of no account for the genesis of the notion of space). Not only does Mr. Courtney tell us nothing of all this, which is just what is most interesting in any comparison of the two thinkers, but he even distorts the little he does tell when he represents Hume as saying that we obtain a "sequence" of sense-impressions by the eye—the eye which Hume so curiously thinks of only as resting. As regards Mill, I should like to add, in support of what was said before, that his discussion of the psychological question of Space in the *Examination* and of the corresponding philosophical question in the *Logic* affords very conclusive evidence to my mind that he was quite unfamiliar with the remarkable discussion of the ideas of Space and Time filling Part II. of Hume's *Treatise*. Surely he could never have passed this by in total silence, if his object had been, as we are told by the Oxford critics, to save mathematical science from Hume's devouring maw.[1]

Mr. Courtney fancies he has discovered a radical inconsistency between Mill's positions in the *Examination* and in the *Logic*. "The fact is," says he (p. 79) "that Mill as an inductive logician supposes that phenomena (objective facts) are immediately cognised by us, while Mill as a psychologist, a critic of Hamilton and a metaphysician, supposes that phenomena, the facts as immediately cognised by us, are mere subjective presentations"; and he says so more particularly because of remarks like this, which to his "amazement" he reads in the

[1] In the *Autobiography*, p. 69, he mentions only the *Essays* (*i.e.*, the *Inquiry*) among his philosophical reading; and it is not the *Inquiry*, with its passing reference to Mathematics in a single paragraph, that can have set him (though it set Kant from another point of view) upon defending the reality of mathematical science. On the whole, in the absence of external evidence, it might be doubted, upon the internal evidence, whether Mill ever read the *Treatise*.

Logic—'Propositions are not assertions respecting our ideas of things, but assertions respecting the things themselves'. Others in their turn may be amazed, after all the discussion that has gone on of late respecting 'material' or 'matter-of-fact' logic, that a statement like this of Mill's should not be held to be perfectly reconcilable with a sort of idealism: over and over again the 'matter-of-fact' logicians have declared that, in dealing with facts and things regarded as objective, they mean to prejudice in no way the ulterior metaphysical question. But it is more to the point to remind his critic that Mill himself knew perfectly well what he was about in speaking, as a logician, of 'facts' and 'things'; see the passage at the very beginning of the *Logic* (Bk. I. 2, 1): 'When I say, The sun is the cause of day, . . . I mean that a certain physical fact, which is called the sun's presence (*and which in the ultimate analysis resolves itself into sensations, not ideas*), causes &c.' And the important chapter 3, 'Of the Things denoted by Names,' which until the *Examination* appeared was Mill's chief contribution to metaphysical theory (but which, by the way, Mr. Courtney hardly touches), surely does not err in the direction of Realism.

As a last remark, it may be noted that Mr. Courtney is rather apt, considering the size of his work, to run away from his subject or to come up to it only after a deal of galloping through the centuries of philosophical thinking; and his statements when he is at the gallop are apt to be looser than they need be. The "two centuries from Descartes to Hegel" (p. 2) were not two, and there is considerable vagueness in the author's next following reference to a "period commencing in the sixteenth century and ending in the eighteenth," whether he means it or not to be same as the "two centuries" just before mentioned. On p. 4, Leibnitz is oddly made to follow upon Hume; and what is meant by the "endless analysis of Wolff"? There is a three-page history of the doctrine of Universals in Chap. ix. that might be more accurate; and even the occasional references to particular thinkers are not so precise as they should have been if they were to be made at all. Here is one (p. 115):—"Kant denied the Power of the individual Self over Volition and Action, and in that sense denied Free Will to the Ego; on the other hand, Free Will, as shown in Morality, is brought back again". When Kant, in Mr. Courtney's phrase, "brought back again" Free Will, was it not to an "individual Self" that he ascribed it? The assertion is led up to through some other sentences, but they do nothing to mend it.

EDITOR.

Logik. Von Dr. CHRISTOPH SIGWART, o.ö. Professor der Philosophie an der Universität Tübingen. 2ter Band. 'Die Methodenlehre'. Tübingen: Laupp, 1878. Pp. 612.

This is the continuation and completion of Sigwart's elaborate work on Logic. Those who have seen the former volume published some years ago will know his general philosophic position and method of

viewing his subject. It is not easy to convey an idea on these points to the English reader, but perhaps if we were to call him Kantian, though he is at issue with Kant on many points, we should mislead less than by using any other familiar designation. The subject of the present volume being Methodology, it is of course concerned with objective laws of nature in great part, rather than with necessities of thought. But though the wine is both new and good, there is a sort of flavour of the old bottle about it. The language is thoroughly conceptualist, and it is always the concept, the *Begriff*, to which we are introduced, and in terms of which the discussion is carried on.

The general aims of the work, in other words, the subject-matter of Methodology, are set before us under the two following heads :—(1) To obtain thoroughly determinate *ideas*, which shall be strictly correspondent with one another in the minds of all thinking persons, and (2) to obtain well-grounded *judgments*, taking care to distinguish between those which are ultimate and those which are derived.

The object-world to which the rules of this Methodology are to be applied is of course the great complex of all phenomena, viewed actually and historically. But in viewing it we come at once to one of those characteristics which so strongly mark off Sigwart's mode of treatment from that of nearly all the principal English writers. In order to carry out the aims of Methodology we need certain postulates : such as that there shall be an orderly arrangement of classes of things into genera, species, and so on ; and also a strict and necessary causal connexion amongst successive events. Whilst denying of course that the ground of these is to be sought in experience, and equally denying that they are necessities of thought in the ordinary signification, he still assigns them a sort of *à priori* origin. But it is one of an *ethical* rather than a purely intellectual character. These aims in fact correspond strictly to an ethical "end"; we must accept them because through them only can the strivings of our intellectual nature find satisfaction.

Time and Space have their traditional priority. The first things, however, to be submitted to analysis are the elements of Number. Sigwart criticises the empirical view that these arise through abstractions from the characteristics of external objects. "Four things" do not necessarily present themselves as four; it is we who put that into them : they may equally be regarded either as "four," or as a unity, *viz.*, as "one". Number arises therefore from the conscious activity of the mind. It may be first suggested and illustrated by material objects; but the felt power of perfectly indefinite progression independently of corresponding objects seems to show that we are here creating for ourselves. In this sense it may be termed *à priori*. In regard to "Space-concepts," the analysis of their origin is somewhat similar to the above; and at many points reminds us of Kant. Whereas number is consciously produced, the intuition of space is presupposed in the representation of an external world. The logical question therefore is this :—How do we from the general intuition of space, get at our logically perfect space-concepts, and what are their ele-

ments? Sigwart is largely occupied here with the origin of the notion of a straight line, and its extreme geometrical importance. How could it be got from experience, nature being so sparing in its production? The point certainly deserves notice. The pure empiricist would I suppose, reply that, admitting the extreme scarcity of straight lines in undisturbed nature, yet, if experience be measured, so to say, by its weight rather than its volume, we find a great deal of them. The first dawn of savage intelligence directs attention to the properties of straight reeds for arrows, of sinews for strings, of tropical creeping stems for everything which needs to be tied or pulled. Sigwart's explanation is found in the fact, whatever its ultimate psychological explanation, that the straight line is the path upon which our representation of external objects is projected or externally localised: it is "the line of sight".

Similar investigations are then devoted to the consideration of Time and Motion. He maintains of these, as of Space, that although our first presentations of them are obtained empirically (this puts a distinction between them and Number), determinate or accurate concepts of them cannot be obtained by sensible impression or abstraction, but only by our own mental activities, that is, by conscious reconstruction of what is given to us.

Then follows some discussion about our simple sensations, and what can be done with them in the way of measurement and fixation. He points out how, from their variable and indeterminate nature, we are obliged, wherever possible, to substitute for any direct measurement of them (such as Fechner tried) some indirect appeal to external phenomena: as, for instance, the expansion of mercury in a thermometer is substituted for our direct sensations of heat and cold. But we really have to assume in these cases that we are measuring the sensations of a normal or average sensitive frame.

The rest of this elementary part is devoted mainly to the consideration of the ultimate nature of the Causal tie and that of Substance. With regard to the latter, he criticises at some length the empirical view that the "thing" is nothing, in the last resort, but a combination of various sensations bound together by associations; maintaining that "there is a synthesis present which cannot be explained by help of any sense-factors, but rests in the last resort upon an original function or activity by virtue of which we combine the perceptions of the various senses in order to fashion them into the shape of an object in space". (It may be remarked that here and elsewhere throughout this volume his references are always to that form of the Empirical Philosophy which confines its appeal to the individual experience. Mill is very frequently quoted and criticised, and likewise Bain, but there is not, I think I may say, a single reference throughout to Mr. Herbert Spencer or his system of philosophical explanation.)

In general consistency with the above view is Sigwart's view of Causation. His treatment is not so much under the wider logical aspect of regularity, as under that narrower aspect of efficiency, upon which the popular mind generally, and most philosophers formerly, laid

so much stress. The following extract will serve to explain his view :—

"In the former case [that of Substance], what we had to do was to gather up into a unity that which was presented to us in space, as appearing in one and the same place, as persisting continuously in time or changing without sudden breach, and to regard the elements thus bound together as springing from one common ground which renders their combination a necessary one. In this case [Cause and Effect] we have similarly to gather up the changes of different things which are connected in time or space, and to grasp them as springing from a single ground. The actual universality with which this happens, *i.e.*, with which the representations of things are formed and their successive alterations are interpreted as the agency of one upon the other, points to a necessity grounded in our thought, which at bottom rests upon nothing else than the fact that in this form alone can the conviction be entertained that what we perceive actually *exists:* thus a ground lying in the data themselves corresponds to the consciously performed grasping-up of that manifoldness which spreads itself continuously through time and space."

Induction of course plays a large part in any treatise on Methodology. From the reference to Professor Jevons's *Principles of Science* in the preface, I had expected a much closer agreement with him on the part of Sigwart than there seems to me to be. He quotes especially the doctrine that Induction is an *inverse* operation—the inverse of Deduction. But in what other than a verbal sense is this doctrine special to Professor Jevons? What it means is that there are *no* rules for induction, as there are for deduction; that we must just hit upon hypotheses and test our deductions from them. But if any one had been asked a few years ago whose view, amongst English writers, this was, would he not have mentioned Whewell, as in fact Mill does at the commencement of his *Logic?* The two points which, more than any other seem to me really distinctive of Professor Jevons's view of Induction are these. First, that Induction is founded on the Theory of Probability (this view, though not assigned to any one in particular, is expressly noticed and rejected by Sigwart, as it seems to me on very sufficient grounds). Secondly (what of course is almost a consequence of the foregoing), that all Induction is essentially uncertain; uncertain, that is, in comparison with deduction. It is no place here to criticise this view; but Sigwart's constant claim for necessary sequence, in opposition to the Empiricists, and his appeal to the quasi-ethical Ideal of a necessary order and sequence amongst phenomena, would appear by implication to reject any such view.

Sigwart's own account of Induction, historically and critically, is very complete. After commenting upon the views of Aristotle and Bacon and others, he expounds his own position. Induction is the process of obtaining valid universal propositions from individual observations. Its logical right rests upon the imperative postulate of our straining after knowledge; *i.e.*, that what is given shall be necessary and based upon universal rules. A process of "Reduction" (in its logical sense) is thus established, by which premisses are sought which shall syllogistically lead to the given observations.

His criticism of Mill, though full of acute and valuable observations,

is of the usual kind, *viz.*, that he postulates a necessary universal proposition as the foundation of Induction, and then goes about to establish it inductively. Logically it seems clear there is nothing to be answered to such a charge, for who should reason in defence of the ground of reasoning? But the logician has always a psychologist behind his back who may be competent to ward off the thrusts against which he is powerless himself; and Mill's ultimate logical principles, I should say, have to be criticised in the pages of Bain rather than in his own. It seems strange that more allowance should not have been made in this direction, for Sigwart himself draws attention clearly enough to the distinction between the psychological process of generalisation and the logical process of justifying our generalisations.

Sigwart's notice of the Theory of Probability is full and adequate. But he adopts very decidedly that subjective view of the science which with us is identified principally with the name of De Morgan. He says, for instance :—

"What we thus estimate is only the measure of subjective expectation which is justified on the ground of the relative amounts of knowledge and ignorance expressed in the disjunctive judgment. But conclusions as to the relative frequency of actual occurrence of the individual possibilities according to the measure of their probability are only admissible when they can rest upon definite assumptions about the conditions of their occurrence."

And again, speaking of "the purely subjective character of the foundations of the Calculus of Probability," he says :—

"It measures nothing but the degree of expectation which I can entertain upon the ground of a disjunctive judgment, which assigns the number of exclusive possibilities present in my then state of knowledge, but which may change as soon as my knowledge becomes more accurate."

Such a view as this is quite in keeping with a conceptualist logic: De Morgan, in perfect consistency, went on to couple with it a similarly subjective Induction, a pure induction, in contrast with the actual or applied induction of the physical sciences. But though not actually at variance, it strikes me as strangely out of harmony with such a really objective view of the subject-matter and application of Induction as that of Sigwart. Probability and Induction are constantly being employed, in conjunction or separately, upon the same data; and if one be regarded as "subjective" in a sense in which the other is not, it seems to me greatly to mar the harmony and symmetry of our exposition of the processes of the reasoning faculty. This objection, it may be remarked, does not apply to some of Sigwart's discussions upon the actual employment of Probability in physical science. His account of the Theory of Errors of Observation demands special notice. It is, to my thinking, very far the best and clearest exposition of the principles of such reasoning that I have seen in any logical treatise.

What are commonly called Inductive Methods are amply discussed. In particular there is a quantity of very acute and interesting criticism of the familiar Four Methods of Mill.

The general scientific standing point of the whole work seems, so

far as I am competent to judge, thoroughly up to the requirements of the time. For instance the modifications demanded in our Material Logic by the admission of the Darwinian Theory, are carefully considered, especially under the two following heads:—(1) The importance, and the possibility, of explaining the presence of *accidental* attributes of species—historically or genetically, of course: the older Logic, if it attempted the problem at all, had no light to throw upon it. (2) The abolition of the old scholastic doctrine of a fixed number of species—of classes, that is, permanent in respect of their attributes.

In consistency with the general anti-material and anti-empirical tendency of the work, it concludes with some chapters of a Teleological character, in which some of the principles of what might be called the Logic of Action, in distinction from that of speculation, are examined, and in particular a parallel drawn between the ends and laws of Ethics and those of Logic.

There has been space in this short notice to touch upon but a few points here and there. But we may conclude by strongly recommending a perusal of the work to English students; for though the greater part of the ground occupied, namely that of Material and Inductive Inference, is one which may be regarded as peculiarly appropriated by our countrymen, yet the entire cast of thought and mode of treatment are so unlike anything to which we are accustomed here, that the study of the work is unusually instructive and suggestive.

J. Venn.

Spinoza's Wijsbegeerte. Door Mr. M. C. L. Lotsij. Amsterdam: J. C. A. Sulpke. 1878.

Mr. Lotsij is an able and thoroughgoing maintainer of the same general line of interpretation of Spinoza's philosophy which has recently been taken up in the Netherlands by Dr. Van Vloten and in Germany by Dr. Löwenhardt, and which was long ago assumed by many of those who most violently assailed Spinoza and by a few of his more or less covert adherents. Among these not the least notable was the Count de Boulainvilliers, whose so-called Refutation of Spinoza (*Réfutation des Erreurs de Benoît de Spinoza*, 1731) is neither more nor less than a popular exposition of the *Ethics* from a point of view as purely empirical as Mr. Lotsij's. He even anticipated the interpretation put by Dr. Van Vloten and Mr. Lotsij on the theory of the eternity of the mind in Part V. of the *Ethics;* of which there will be a word to say presently. I think, however, that Mr. Lotsij is the first person who has positively asserted that Spinoza's philosophy is not only empirical, but the most empirical, the most free from assumptions, and therefore the most critical, of all philosophies yet delivered to mankind.

Mr. Lotsij begins with a chapter of Prolegomena, entitled "Scepticism and Pessimism". He admits that the position of absolute Scepticism is logically impregnable, and then points out—(1)

that it is practically untenable, since we have to make scientific and philosophical assumptions of some sort even for the common uses of life, and for this purpose the layman is in the same boat with the philosopher, whether he knows it or not; (2) that scepticism nevertheless has its fitting use as a wholesome discipline for the understanding. It is a monitor constantly at hand to save us from making to ourselves intellectual and philosophical idols. As for pessimism, it is also true in a way, and it may do us no harm to let it read us a sermon on the vanity of human life—at reasonable intervals. It is scepticism in the region of emotion ("het scepticisme van het gemoed"); and, like scepticism, has its uses within limits which must be fixed by the convenience of mankind. Another introductory chapter is given to Kant, whom Mr. Lotsij thinks it necessary to hold very cheap: as for Schopenhauer, he has already been charged with gross blundering for calling Spinoza an optimist. Mr. Lotsij regards Kant's work as rather logical than philosophical, and affording no ground whatever for positive construction: and here Schopenhauer is allowed the merit of having made it clear (though not intentionally) "that Kant's road will never lead to philosophy". Spinoza on the other hand lays down the lines within which real philosophy is possible. "There is no philosophy *outside* Spinoza's. . . . Many theories will yet come to complete Spinozism, to explain it, and even to prove it at points where Spinoza's own proofs fall short; but none, in my opinion, will overthrow any of his main positions." A similar remark occurs in the Preface to Gfrörer's edition of Spinoza. Mr. Lotsij then proceeds to discuss the *Ethics* in detail. He gets over the dogmatic form of Part I. by regarding it as a scientific hypothesis founded on experience, but for the purpose of exposition stated without reference to its data. The hypothesis is verified by working out the consequences in the subsequent Parts, and thus showing that it does explain our actual experience. Spinoza begins with stating his general principles dogmatically, just as all other scientific writers do. Mr. Lotsij's assertion is a trifle sweeping; but he might safely have added that this at all events is what Euclid does. His definitions involve enormous provisional assumptions, which are afterwards justified in the course of the work by showing that the relations defined can really be obtained by geometrical construction. The tacit appeals to experience not unfrequently made by Spinoza when and as he wants them have also their precise analogy in Euclid. If stress is to be laid on Spinoza's "geometrical order," he might at least be allowed an amount of licence corresponding to that which was taken without rebuke by the most rigorous of geometers. But I think myself that this point has been far too much pressed by most critics of Spinoza. It appears to me that the *Ethics* neither purports to be nor is other than a synthetic statement of results analytically obtained by some such process as is partly shown in the *De Intellectus Emendatione*. Mr. Lotsij's view of Part I. of the *Ethics* as a kind of hypothetical construction is valuable in so far as it shows a modern reader how to derive the utmost profit from Spinoza. His

reading of Spinoza's claim, almost in his own words, is this: "Here is the lock of the world which we are all trying to open. I have been trying too, and here is the best key I have been able to make. Now let us see if it will fit." Whether Spinoza would have been satisfied with this reading is another matter. But then, as Mr. Lotsij says, when we have once made up our minds to be contented with scientific probability, the value of any particular hypothesis is not diminished by the fact, if so it be, that the author held it as a transcendental certainty.

Only a few points of Mr. Lotsij's further exposition can here be selected for comment. The theory of the Attributes is very carefully discussed, and in my opinion in the right way. On the difficult question of what Spinoza's "Infinite Modes" are, Mr. Lotsij declines to commit himself positively, but suggests that Spinoza had in his mind "the infinite laws of nature [infinite in number or in extent?] which are as unchangeable and imperishable as matter, and yet cannot be conceived without it". This is to me not satisfactory, seeing that Spinoza was not given to confound things with relations between things, and also could and did speak of "leges naturae" just as we do when that was his meaning. Indeed he speaks of the "eternal things" (*Int. Em.* cap. 14), which I would identify with the Infinite Modes, as having laws of their own. My own opinion is that the Cartesian theory of physics affords the key to this and other minor puzzles in Spinoza. In my view the Infinite Modes are as follows:

In Extension:—

(1) Motion, conceived, according to the error of Descartes afterwards corrected by Leibnitz, as *constant in quantity;* quantity of motion being what is now called momentum. Sometimes we find "motus et quies," but comparison of Descartes' language in the *Principia Philosophiae* shows that "quies" is a mere rhetorical addition.

(2) The sum of extended things taken together as one Mode (*Eth.* II. 13, Schol. after Lemma; "facies totius universi," *Ep.* 66, *ad fin.*) This is extension modified by motion and rest, and therefore is said to be produced by God not immediately, but through the operation of Motion ("mediantibus his primis," *Eth.* I. 28, Schol.).

In Thought:—

(1) Spinoza's theory of correspondence between mind and matter is universal, and postulates a psychical fact or relation corresponding to every physical fact and relation. See *Eth.* II. 7. The sum of all the psychical facts or events corresponding to Motion (assumed to be a physical and constant *thing*) will therefore be an Infinite Mode. This appears to be called by Spinoza "intellectus absolute infinitus" (*Ep.* 66) and may perhaps have been conceived by him as being in the nature of νοῦς ποιητικός—the first activity of Substance in the attribute of Thought. Leibnitz (ap. Foucher de Careil, *Leibnitz, Descartes et Spinoza*) did in fact note "intellectus agens" as being one of the "res aeternae" mentioned in cap. 14 of the *De Intellectus Emendatione.*

(2) To the material "facies totius universi" there will correspond

the sum of all particular Modes of Thought, conceived as making up one Mode (Kuno Fischer's *Inbegriff aller Ideen*, which I think will not do to represent "intellectus absolute infinitus"). But this is not specified by Spinoza. It might be the "idea Dei in cogitatione" of *Eth.* I. 21; but Spinoza there seems to put it in the first line, so as to = "intellectus absolute infinitus" of *Ep.* 66. If he had attempted to draw the line between (1) and (2) he would perhaps have been led to see the difficulties of treating Motion as a substantive and individual thing.

I cannot find that any other Infinite Modes are mentioned or required by Spinoza; save that in pure theory there would be Modes answering to these in every one of the numerically infinite Attributes to us unknown. Cp. the treatise *De Deo et Homine* part I, cap. 9. Observe too that in *Intell. Em.* c. 14 the *res aeternae* are said to be *causae proximae* of all particular things. Now it is clear that in Extension nothing less general than Matter and Motion will satisfy this description.

There are however eternal Modes which are not infinite, *viz.*: every human mind, so far as it understands things rationally or "sub specie aeternitatis," and (as I think) every object of knowledge, in so far as it can be so understood: *Eth.* V. 40, Schol., and see below.[1]

If one read these passages of Spinoza without reference to Descartes, one might find in them a pretty enough prophecy of the Conservation of Energy (*motus et quies* = *res aeterna* or *modus infinitus* = constant; now let *motus* = Energy of Motion, *quies* = Energy of Position, take *et* for the sign of addition, and the thing is done). But Spinoza is evidently just where Descartes was; though late in life he did express himself dissatisfied with Descartes' physical principles or some of them (*Ep.* 70). In the letter just referred to he seems to have an inkling of the fatal objection to the Cartesian system pointed out by Prof. Clerk Maxwell, *viz.*, that it takes no account of the fundamental conception of Mass.

On the whole then we have:—

A. *Deus* (causa absolute proxima).

Res aeternae seu modi infiniti (Causae proximae)

Extensio. Cogitatio.

B. *Res a Deo immediate productae.*

Motus. Intellectus absolute infinitus.

B'. *Modi qui et necessario et infiniti existunt, mediantibus his primis.*

Facies totius universi. [Idea Dei in cogitatione?]

C. *Res singulares quae finitae sunt.*

The central point of Spinoza's metaphysic as applied in Part II. of the *Ethics*, namely that *idea* is a *modus cogitandi* or complex of mind-elements, not necessarily in a human mind or in a conscious mind at all, is thoroughly grasped by Mr. Lotsij, and very clearly set forth. So is the parallel correlation of mind and matter. "There is no

[1] Herr Camerer (*Die Lehre Spinoza's*, Stuttgart, 1877) has been misled, as it appears to me, by overlooking this distinction.

operation of matter on mind, no production or excitation of thought by matter, but the mind associated or united with the matter acting takes effect on the mind belonging to the matter acted upon." Further on the determinist argument is put in a somewhat novel form —namely that a present desire can be changed or restrained only by a new motive supervening; but the appearance and intensity of a new motive in consciousness are obviously beyond our power. This however does not meet the attention-theory of free will (that the will has an absolute discretion to select for prominence one or more of conflicting motives present at the same time) which has been put forward by various modern writers.

In discussing Spinoza's ethical principles Mr. Lotsij says that the victory of Darwinism in science implies the victory of Spinozism in moral and political philosophy. I agree with Mr. Lotsij that there is an intimate connexion between the two, and have already said as much here and elsewhere. But to say that "no theory of ethics, law, or politics other than Spinoza's is compatible with Darwin's hypothesis" appears to me a little too confident. Science must always leave an "unexplored remainder" within which those who are so minded may set up transcendental assumptions—at the risk, it is true, of being driven out by the science of the next generation. And, more generally, Mr. Darwin's theory and every other scientific theory is an explanation of phenomena in terms of actual or possible phenomena: and a transcendentalist who knows his own business can always keep clear of being brought to book in that region. I may notice here, a little out of due order, that Mr. Lotsij's championship of Spinoza's moral and political doctrine is to a great extent directed against prejudices which we are little troubled with in this country. People with their heads full of so-called philosophy of law and transcendental theories of ethics naturally regard Spinoza's doctrine as "brutal force-worship," a neat phrase invented by a recent critic in Holland. Here our school of jurisprudence has built on the foundations of Hobbes and Bentham, and in morals utilitarianism, an offshoot of Bentham's political theory, is familiar to the educated public. So that English readers, and most of all English lawyers, have really no excuse for losing their heads at the sight of the *Tractatus Theologico-Politicus* or the *Tractatus Politicus*. The *Leviathan* has been always with us: and if ingenious persons try to dress up its nearest relation as a pasteboard dragon ready to swallow up all civil order and liberty, we can only say with Trinculo, "By this good light, this is a very shallow monster". When it is already a commonplace of our text-books that, strictly speaking, there is no such thing as international law, we are in a position to consider Spinoza's treatment of law and politics with advantages perhaps not wholly enjoyed by our Continental brethren.

I proceed to Mr. Lotsij's treatment of Part V. of the *Ethics*. The eternity of the mind there propounded by Spinoza is certainly the most difficult point in his system. According to the psychology of Part II., it would seem that all we can say about death is that

consciousness, being the complex mode of thought united with a particular living organism, ceases with the life of that organism; but that the elements of which consciousness is built up nevertheless continue to exist in other forms and combinations, just as do the atoms of which the body was built up. They persist as elements of the infinite intellect or "idea Dei" which determines and comprehends all modes of thought. Boulainvilliers (*op. cit.* pp. 157 ff.) obviously thought that this was what Spinoza ought to have said. Dr. Van Vloten distinctly expresses the same opinion. But Mr. Lotsij goes a step farther and maintains that, taking the enunciations of Part V. as qualified by the demonstrations, this is what Spinoza did say. The proposal, if acceptable, would simplify matters considerably; but for my part I am unable to accept it. I do not think Spinoza was either incapable of expressing his meaning plainly, if it had been as suggested, or capable of elaborately throwing dust in the eyes of his readers through several propositions in which his style is, if anything, more earnest than usual. Not that there is nothing to be said for Mr. Lotsij's view. The demonstrations of Propp. 22 and 23 are perfectly general in form, and there is nothing to show why they should be confined to human bodies and minds, though the enunciations are so qualified in terms. It would seem to follow that there is an "aliquid aeternum" in the mind or mode of thought corresponding to every individual extended thing. And since we may take the individual as small as we please, the not-eternal part of mind would thus be less than any assignable quantity; that is, all mind whatsoever would be eternal; which seems at first sight to make for the conclusion sought by Mr. Lotsij. But this eternity would still have nothing to do with the persistence in time of the component parts of mind or body after the dissolution of the organism. For "nec aeternitas tempore definiri, nec ullum ad tempus relationem habere potest". The only sense in which it could be maintained would be this: that *every* mode or *res singularis* is eternal, in so far as it can be understood or conceived "sub specie aeternitatis," that is, rationally or, as we should now say, scientifically, as part of the necessary order of nature (*Eth.* II. 44, Cor. 2). This I think is tenable as a Spinozistic thesis; and I shall presently make use of it. And thus much is now evident, that Mr. Lotsij is right in stoutly denying that Spinoza's eternity has anything to do with personal immortality in the ordinary sense. An eternity which excludes memory and imagination (*Eth.* V. 21) and is incommensurable with time, is not a conscious future life, whatever else it may be.

But can we rest content here? I think not. Why should Spinoza so entangle a plain matter, if this were all? To save appearances, Mr. Lotsij suggests. But there is no saving of appearances in the *Ethics:* there is no trace of hesitation or accommodation in the treatment of free-will and final causes. It is true that Spinoza tried to find a real meaning for as many of the current philosophical terms as he could; but he never attempts to disguise that his new meanings wholly differ from the current ones. Mr. Lotsij's hypothesis amounts

to charging Spinoza with something hardly distinguishable from a trick. And then, if he meant to save appearances, he has done it very clumsily. No orthodox reader ever was or could be conciliated by these propositions, especially after what had gone before in Part I. If Spinoza had had any such intention, he was more likely to leave the whole matter alone. What seems to me decisive, however, is that Spinoza repeats expressly the statement that only a part of the mind is eternal, which part is greater or less in different individuals :—"Qui corpus ad plurima aptum habet, is mentem habet, cuius maxima pars est aeterna," Prop. 39 ; and the Prop. taken together with the preceding series, especially 31 and 38, shows that this eternity is a function of pure intellect. Therefore the mere persistence of Substance in various forms, or of the Infinite Modes as comprehending all finite Modes, will not explain it.

It does not seem to me possible to make Spinoza's doctrine perfectly consistent. But I shall hazard a partial explanation of the riddle, though I was long disposed to give it up as insoluble. As to the historical derivation of the theory, I suggest that it comes from the Aristotelian doctrine of intellectual immortality as developed by the Averroists. In their system immortality depends on the amount of contemplative knowledge possessed by the mind in this life. The subject was treated in detail by Gersonides, whose work was probably familiar to Spinoza. Ibn-Roshd himself, whom Moses ben Maimon inclined to follow, considered this intellectual immortality as not being individual; Levi ben Gerson, so far as I collect from Dr. Joël's account,[1] seems to have held that it was not an absorption in universal intellect, but was individual in some sense. And this appears to be Spinoza's doctrine, save that he carefully avoids using the word immortality, as if to make the distinction from the popular creed as marked as possible. This again does not look like saving appearances. The active or intelligent mind, as "aeternus cogitandi modus" (*Eth.* V. 40, Schol.) is part of "Dei aeternus et infinitus intellectus," but not lost in it. But the individuality in question, as above explained, must not be supposed to imply consciousness.

As to the point and connexion of Spinoza's argument, I suggest that it may be analysed as follows. Whenever the mind knows anything "sub specie aeternitatis" the mind so knowing is a state of consciousness correlated with a definite state of its bodily organism, or in Spinozistic terms it is "idea certi cujusdam affectionis corporis". Now there runs through much of Spinoza's dialectic a curious ambiguity between *idea* in the common sense, namely a concept or image in a conscious mind, having reference to an object perceived or conceived as external, and *idea* in Spinoza's extended sense, namely any psychical fact whatever, considered either merely in itself or with reference only to the corresponding mode of extension. When for instance Peter thinks of Paul, his thought is "idea Pauli" in the one sense

[1] *Levi ben Gerson als Religionsphilosoph* (Breslau 1862), in *Beiträge zur Gesch. der Philosophie.*

and "idea affectionis corporis Petri" in the other. And, by a process which might almost be called an application of symbolic algebra to psychology, Spinoza constantly transfers statements from the one sense of *idea* to the other without warning. See the series of propositions *Eth.* II. 22-29, 32-34. He says that "all ideas are true with respect to God": where the only real meaning is that every mode of thought is a really existing psychical fact and is what it is; and that, where it is part of a conscious mind and an idea in the ordinary sense, its truth or error in the ordinary sense makes no difference to this statement (II. 32). Now, coming back to *Eth.* V. 29, we find that the mind when it understands anything "sub specie aeternitatis" is said also "corporis essentiam concipere sub specie aeternitatis". The correspondence of mind and body, as manifestations of the same reality under two Attributes, is treated as equivalent to the relation between the knowing and the known. Such a paralogism in Spinoza seems astonishing. But its existence is forced upon one quite independently by careful consideration of Part II. In the case put, then, the argument is that the mind knows its own body "sub specie aeternitatis". But whatever is known "sub specie aeternitatis" is itself to that extent eternal (arg. *Eth.* II. 44, Cor. 2, and 45, Schol.). Therefore the human body, so far as this knowledge of it is involved in the mind's rational knowledge of things, is eternal. Therefore the human mind, as the "idea" (correlate) of the body, or "idea quae corporis essentiam sub specie aeternitatis exprimit," (confusion of correlate with concept) is also to that extent eternal. And its knowledge of the body "under the form of eternity" is also a knowledge of itself, since *mens = mentis idea*, *Eth.* II. 21. So that the mind knows itself as eternal in every act of exact knowledge, and Spinoza can say (*Eth.* V. 23, Schol.) "sentimus experimurque nos aeternos esse". Further, the mind is in every such act identified with the necessarily existing "idea quae huius et illius corporis humani essentiam sub aeternitatis specie exprimit" (Prop. 22, cp. Prop. 30); and is an eternal mode of thought which, along with endless other eternal modes, goes to make up the sum of eternal and infinite intellect (Prop. 40, Schol.). I do not flatter myself that I have made the argument very clear; that is hardly in the nature of the case. But I think I have shown how it may have appeared to Spinoza to be both convincing and consistent with the psychology of Part II. of the *Ethics*.[1] I must leave it to others to find Peripatetic or Averroistic precedents for the line of reasoning, if any such there be.

For the rest, I am not sure that the suggestions here made have much of the merit and demerit of actual novelty. On turning again to Kuno Fischer's exposition, I find it quite consistent with what I

[1] It seems to me that the reading here given is not a little confirmed by Spinoza's own language in Prop. 31, Schol.: "mentem aeternam esse, *quatenus res sub aeternitatis specie concipit*". And again in Pr. 40, Schol.: "apparet quod mens nostra, *quatenus intelligit*, aeternus cogitandi modus sit".

have advanced: only it is not worked out in detail, and in particular there is no remark on the ambiguity in Spinoza's use of *idea*, which is to me a point of some importance.

In conclusion I should like to point out that an apparent abuse of language in Prop. 35 of Part V. is a mere accident on which nothing turns. Spinoza says: "Dei natura gaudet infinita perfectione" &c., in the course of proving the proposition: "Deus se ipsum amore intellectuali infinito amat". At first sight *gaudet* looks as if it were meant to smuggle in the notion of *laetitia*, and so make *amor* plausible. But Spinoza has already guarded himself. In the Schol. to Prop. 33 he says that *amor intellectualis* has no origin in time, and therefore is not *laetitia* (which, being defined as a passing to greater perfection, involves a finite time), but "habet tamen omnes amoris perfectiones perinde ac si ortus fuisset". It may, however, be called *beatitudo*, as the present and constant possession of perfection.

F. POLLOCK.

IX.—NEW BOOKS.

[*These Notes are not meant to exclude, and sometimes are intentionally preliminary to, Critical Notices of the more important works later on.*]

The Pathology of Mind. Being the Third Edition of the Second Part of the *Physiology and Pathology of Mind*, recast, enlarged and rewritten. By HENRY MAUDSLEY, M.D. London: Macmillan, 1879. Pp. 580.

In now publishing separately the Second Part of his *Physiology and Pathology of Mind*, which first appeared as one work in 1867 and reached its second edition in the year following, Dr. Maudsley has changed and enlarged his original draft to a much greater extent than in the case of the First Part, which was noticed in MIND VI., shortly after its separate appearance in 1876. The *Pathology* is now in fact, by itself a larger work than the composite original, and the author is justified in calling it substantially a new production. The admirable chapters (pp. 82) with which the book now opens on "Sleep and Dreaming" and on "Hypnotism, Somnambulism and other allied states"—viewed as phenomena through which the transition may be made from the natural healthy action of mind to mental disease proper—might alone suffice to give it a new interest, but these are but a small part of the added matter. In particular the discussion of the "Causation and Prevention of Insanity" is now made to go much deeper by the author's laying emphasis on "the fact that insanity is really a social phenomenon" and insisting "that it cannot be investigated satisfactorily and apprehended rightly except it be studied from a social point of view". In default of a scientific classification of the varieties of mental derangement upon a pathological basis, which remains as before the great desideratum, Dr. Maudsley adheres to his old plan of first describing in a general way

the varied symptoms of insanity as if it were one disease running through a certain course, and then delineating as graphically as he can —which is very graphically—"the different clinical groups of mental disorders that are met with in practice and have to be dealt with by the physician". On the whole it may be said of this book, in the form it has now received, that it exhibits its author at his strongest. His peculiar psychological insight has full scope for its exercise in the protean forms of mental disorder even more than in the procession, complex enough as that is, of orderly mental life, and he has so much to tell us about his subject that he has no time or space to lose in the sport of decrying the introspectionists and their method. He is himself, of course, as introspective in practice as a psychologist cannot help being, and only he is ever conscious how much more than introspective he has to be if he is to determine anything certainly about the life of mind. What is valuable in his *Physiology of Mind* falls naturally to be reproduced in the course of his treatment of mental disease, and while its value is increased or becomes more manifest in the concrete application, occasions are presented for fresh psychological suggestions. Not only is this notably the case in the chapter on "Sleep and Dreaming" which will rank henceforth as a real contribution to the subject, but also in the chapter on "Insanity in Early Life". The view there given of the normal development and growth of mind in children is very noteworthy.

Evolution, Old and New, or, *The Theories of Buffon, Dr. Erasmus Darwin, and Lamarck, as compared with that of Mr. Charles Darwin.* By SAMUEL BUTLER. (Op. 4.) London: Hardwicke and Bogue, 1879. Pp. xii. 384.

This work, written in the author's clever and amusing style, is an attempt to resuscitate the Lamarckian as opposed to the Darwinian theory of Evolution. Mr. Butler begins by quoting and enforcing Paley's teleological view of the human organism, which he cannot but regard as the product of design. The designer, however, is not for him an external intelligence, but the man himself and all his ancestry. Every organ of the body must have been produced by conscious effort, in generation after generation, to meet a felt want. The act of producing these organs, which was conscious and intelligent in the beginning, has become habitual and automatic in the fully-formed species—except as regards organs still undergoing change. Accordingly, Mr. Butler attempts to reinstate Lamarck's and Buffon's theory of development by voluntary endeavour, and to show that natural selection really explains nothing. In so doing, he follows very closely the line of argument already taken by Prof. Mivart and M. Delbœuf. As natural selection does not *produce* variations but merely *spares* the best, Mr. Butler argues that the true cause of organic adaptation is to be found in the variations themselves, or rather in that which produces the favourable variations. And this, he believes, is conscious effort. He might sum up his idea in M. Paul Janet's phrase (which he does not seem to know): "L' intelligence est l' origine du mieux, tandis

que la sélection naturelle est le tribunal auquel sont soumis tous les résultats obtenus par la force de croissance." It is hardly needful to point out that this crude theory does not account at all for adaptation in plants, which Mr. Butler is compelled dogmatically to regard as conscious and voluntary beings. He is also very hard upon those persons who refuse to see proofs of intelligent design in the movements of protozoa: and as a general rule, he is ready to accept any grotesque conclusion rather than abandon a little of his dogmatic hypothesis. This is the more curious as he can chide Mr. Darwin and others for what he imagines to be similar one-sided blindness on their part. He entirely overlooks, or rather he denies without reason assigned, the immense influence of mere accidental variation, which in the case of domesticated animals and plants, has been used with so much effect by Mr. Darwin to account for the changes and adaptations in nature. Withal, the book is worth reading for its occasional suggestiveness, and its anecdotical episodes help to make it very readable.

Demonology and Devil-Love. By MONCURE DANIEL CONWAY, M.A., B.D. With numerous illustrations, 2 Vols. London: Chatto and Windus, 1879. Pr. 428, 472.

Mr. Conway treats the subject of demons and evil spirits from the standpoint of historical psychology. Beginning with the primitive gods, whom he supposes to have been dualistic and undifferentiated, he shows how they gradually separated into two distinct classes, the beneficent and the malevolent. Demons, he believes, are in fact degraded deities, ex-gods, or offshoots from the original nature-worship, regarded now as kindly, now as inimical. From this point of view, he classifies them according to the various objective evils of which they are supposed to be personifications. Twelve classes are thus erected—the round dozen seems rather like a survival of mystical numbers even in Mr. Conway—answering to the notions of Hunger, Heat, Cold, the Hostile Elements, Noxious Animals, Enemies, Barrenness of Soil, Physical Obstacles, Illusions, Darkness, Disease, and Death. This catalogue appears a little tautological and wanting in definite demarcations—a defect which the author himself acknowledges. The Serpent or Dragon, as an embodiment of the Demon, forms the subject of some twelve chapters, which are remarkably free from the mysticism that besets even rational writers when they get upon this dangerous ground. Mr. Conway treats the serpent as the chief primitive enemy of the human species, and traces the origin of Serpent-worship to fear. He even ingeniously connects it with that instinctive horror of the snake-form which Mr. Darwin and Brehm discovered amongst our quadrumanous relatives. The second volume deals with the Devil, Christian or otherwise; the differentia of Devils, as distinguished from Demons, being, according to Mr. Conway, that the former are morally bad for the pure love of wickedness, while the latter are merely cruel to man incidentally for the gratification of their own desires. The Devil is in fact the correlative of God; the

personification of Evil, as God is the personification of Good. The history of this conception is very fully traced, and much valuable light is cast upon many parts of the question by Mr. Conway's treatment. There are several points, however, which seem to call for further consideration. For example, Mr. Conway throughout takes for granted the mythopœic theory of the origin of supernatural beings, and never once alludes to the rival ghost-theory. But surely, since the publication of Mr. Spencer's *Principles of Sociology*, I.—which our author has read and quotes sparingly—that theory at least merits consideration. Again, in his treatment of the Serpent, he does not once allude to Mr. Spencer's luminous remarks on this subject, nor to his ingenious speculation on the origin of the bats'-wings attributed to Demons. Nor is his philology by any means above question, as where he explains the name of Lady Godiva (Godgifu) by "Good Eve": while his explanations of Semitic myths seem a little too off-hand and uncritical. Nevertheless, the book is well worth perusal, and bears witness to wide reading on the part of its author. [G. A.]

Max Müller and the Philosophy of Language. By Ludwig Noiré. London: Longmans, 1879. Pp. 102.

In his *Ursprung der Sprache*, Herr Noiré thinks he did not do justice "to the great merits of Max Müller," and he writes the present pamphlet as a palinodia. He begins with a chapter on "Darwin and Max Müller," in which he italicises the statement that "*Max Müller is the only equal, not to say superior antagonist, who has entered the arena against Darwin*". He then quotes a few dogmatic assertions of the Oxford professor, and continues thus:

"With these weighty arguments our hero confronted undauntedly all the onslaughts of irate Darwinians, and concluded resolutely his defence of the seemingly abandoned fortress—

"'Here is reason, here language, here humanity. None shall pass here; none penetrate into the sanctuary who cannot tell me first how reason, how speech, was born.'

"And the shouting bands of the assailants were struck dumb, for they could give no answer."

The unanswerable argument thus heroically characterised is the old question-begging assertion—"No speech without reason; no reason without speech;" which Herr Noiré prints as motto on his title-page. Neither he nor Prof. Müller can ever have kept a dog, for, as Mr. Leslie Stephen truly remarks, no man who ever did so "can have any doubts as to an animal's power of performing the essential processes of reasoning". Elsewhere, our author quotes Lange to the effect that "we give the name of *thing* to a group of phenomena, which, making abstraction of remoter relations and internal changes, we grasp and conceive as one": and he adds "it follows undoubtedly from this definition that things have no existence for animals; for even the most extreme Darwinian will hardly venture to maintain animals to be capable of this". Similar unverified observations occur on every page; and how little qualified Herr Noiré is to write upon the subject he has chosen may be seen from his assertion that "*Mental*

development. . . . is almost entirely ignored, or only incidentally mentioned, by the modern school of evolutionists". Apparently he has never even heard of Mr. Spencer's *Principles of Psychology*.

The gist of the book seems to lie in its high appreciation of Max Müller's work in "demolishing" the Bow-wow and Pooh-pooh theories of the origin of language. Herr Noiré seems to be unaware that his own doctrine is merely the latter theory couched in a very metaphysical and mystical terminology. He has done good service in defending and illustrating that theory: but he certainly has *not* substituted for it any new and independent principle. Philosophically, he has nothing to offer except vague hints of a grand idea which he does not divulge. Scientifically, he sums up his regard for facts in the following sentence: "If we find accounts, in modern books of natural history, of agricultural ants who sow their seeds and wait patiently till they come up, the mildest expression for such vagaries of the imagination is scientific lunacy." Yet most people will consider Sir John Lubbock quite as sane as Herr Noiré. [G. A.]

Principles of the Algebra of Logic with Examples. By ALEXANDER MACFARLANE, M.A., D.Sc. (Edin.), F.R.S.E. Edinburgh: Douglas, 1879. Pp. 155.

"It is the object of this work (originally contributed to the Royal Society of Edinburgh in a memoir received by the Secretary, 9th Oct., 1878, and in a supplementary paper received 5th Nov.) to investigate the foundations of the analytical method of reasoning about Quality, with special reference to the principles laid down by Boole as the basis of his calculus, and to the observations which have been published by various philosophers concerning these principles. I bring forward a new theory of the operation of the mind in reasoning about Quality, which enables me to correct Boole's principles, and place them on a clear rational basis. I endeavour to show that the analytical method of reasoning about Quality is an Algebra, which coincides with the Algebra of Quantity when the symbols are integral, but is a generalised form of the latter when the symbols are fractional. The rest of the work is taken up with the investigation of problems by means of this algebraic organon,—especially such problems as are suggested by the ordinary Logic, and by the Mathematical Theory of Probability."

Problems of Life and Mind. By GEORGE HENRY LEWES. Third Series. Problem the First: *The Study of Psychology, its Object, Scope and Method.* London: Trübner, 1879. Pp. 189.

This Problem, we are told, is published separately in obedience to an implied wish of the author, and has been printed from his manuscript with no other alterations than such as it is felt certain that he would have sanctioned. Another volume will appear in the autumn; and criticism may best be reserved till the author's whole legacy is before us. Some notion of the present instalment may be gathered from the following table of contents:—

"The Object (Relation of Psychology to Physiology, Body and Mind. Function and Faculty, Mechanism and Experience); The Motive; The

Position of the Science (Objective and Subjective Laws, Views of Comte, Mill, and Spencer); The Social Factor; Subjective Analysis and the Introspective Method; Limitations of the Introspective Method; The Freedom of the Will; Objective Analysis (Animal Psychology, Differences of Animal and Human, the Moral Sense, History); The General Mind; The Mental Forms; Analysis and Synthesis."

The Data of Ethics. By HERBERT SPENCER. London: Williams & Norgate, 1879. Pp. 280.

"A reference to the programme of the 'System of Synthetic Philosophy,' will show that the chapters herewith issued, constitute the first division of the work on the *Principles of Morality*, with which the System ends. As the second and third volumes of the *Principles of Sociology* are as yet unpublished, this instalment of the succeeding work appears out of its place.

"I have been led thus to deviate from the order originally indicated, by the fear that persistence in conforming to it might result in leaving the final work of the series unexecuted. . . . Written as far back as 1842, my first essay, consisting of letters on *The Proper Sphere of Government*, vaguely indicated what I conceived to be certain general principles of right and wrong in political conduct; and from that time onwards my ultimate purpose, lying behind all proximate purposes, has been that of finding for the principles of right and wrong in conduct at large, a scientific basis. To leave this purpose unfulfilled, after making so extensive a preparation for fulfilling it, would be a failure the probability of which I do not like to contemplate; and I am anxious to preclude it, if not wholly, still partially. Hence the step I now take. . . .

"I am the more anxious to leave in outline, if I cannot complete, this final work, because the establishment of rules of right conduct on a scientific basis is a pressing need. Now that moral injunctions are losing the authority given by their supposed sacred origin, the secularisation of morals is becoming imperative. Few things can happen more disastrous than the decay and death of a regulative system no longer fit, before another and fitter regulative system has grown up to replace it." . . . One party "holds that the gap left by disappearance of the code of supernatural ethics, need not be filled by a code of natural ethics"; another "holds that it cannot be so filled. Both contemplate a vacuum, which the one wishes and the other fears. As the change, which promises or threatens to bring about this state desired or dreaded, is rapidly progressing, those who believe that the vacuum can be filled, and that it must be filled are called on to do something in pursuance of their belief.

"To this more special reason I may add a more general reason. Great mischief has been done by the repellent aspect habitually given to moral rule by its expositors; and immense benefits are to be anticipated from presenting moral rule under that attractive aspect which it has when undistorted by superstition and asceticism. . . .

"Nor does mischief result only from this undue severity of the ethical doctrine bequeathed us by the harsh past. Further mischief results from the impracticability of its ideal. In violent re-action against the utter selfishness of life as carried on in barbarous societies, it has insisted on a life utterly unselfish. But just as the rampant egoism of a brutal militancy was not to be remedied by attempts at the absolute subjection of the ego in convents and monasteries; so neither is the misconduct of ordinary humanity as now existing, to be remedied by upholding a standard of abnegation beyond human achievement. Rather the effect is to produce a

despairing abandonment of all attempts at a higher life. And not only does an effort to achieve the impossible, end in this way, but it simultaneously discredits the possible. By association with rules that cannot be obeyed, rules that can be obeyed lose their authority. . . .

"The relations of this work to works preceding it in the series, are such as to involve frequent reference. Containing, as it does, the outcome of principles set forth in each of them, I have found it impracticable to dispense with re-statements of those principles. Further, the presentation of them in their relations to different ethical theories, has made it needful, in every case, briefly to remind the reader what they are, and how they are derived."

The Relations of Mind and Brain. By HENRY CALDERWOOD, LL.D., Professor of Moral Philosophy, University of Edinburgh. London: Macmillan, 1879. Pp. 455.

"The object of the present work is to ascertain what theory of mental life is warranted on strictly scientific evidence.

"The order followed is to consider, *first*, the latest results of anatomical and physiological research as to the structure and functions of the brain; *second*, the facts in human life unaccounted for by anatomical and physiological science and requiring to be assigned to a higher nature.

"On the side of Mental Philosophy, it must be recognised that analysis of consciousness cannot be regarded as affording a complete survey of the facts of personal life. On the other hand, it is clear that the known facts connected with cerebral action do not include familiar phases of mental activity. If we allow ourselves to be engrossed with Physiological investigation as to brain, we restrict our attention to a single class of facts and become unable to take a view of human life as totality. The whole range of evidence must be traversed, if we are to secure a harmonious representation of the constitution of human nature."

La Psychologie allemande contemporaine (École expérimentale). Par TH. RIBOT, Agrégé de philosophie, docteur ès lettres. Paris: Germer Baillière, 1879. Pp. xxxiv., 368.

Deferring critical notice of this very opportune work to another occasion, we give now a mere summary of its contents. After an Introduction in which the author enthusiastically does battle for the physio-psychological (objectively experimental) method of inquiry not only against the older metaphysical method but also in advance upon the scientific method of introspection as mainly practised by the English school of psychologists, he begins his review of the German psychological movement in this century with a short account of its real initiator Herbart, from whom he is led on to the knot of Herbartians—Waitz, Lazarus and Steinthal—who have founded the comparative psychology of races. Beneke also, the younger contemporary of Herbart and his rival in upholding (from a different point of view) the cause of scientific psychology, receives a passing notice. The main subject of the work is then opened up in a careful account of Lotze's psychology, especially his theory of "local signs"; upon which follows a comprehensive review of the whole conflict between the Nativists and Empirists as to the origin of the notion of space. Fechner's "psychophysical" investigations and all those to which they have given rise

are next considered; and thereupon, at still greater length, the system of "physiological psychology" as far as yet developed by the labours of Wundt. The special investigation of the "time" of psychical acts (the work of a long series of inquirers) is described in the remaining chapter of the work, before the author proceeds in his Conclusion to refer to some of the most recent psychologists with a distinctive character of their own (Horwicz, Brentano, &c.), and to sum up the results of the whole review. English students of psychology who read French and not German may judge from this summary how much information is now made accessible to them concerning a scientific movement not more rich in past performance than big with promise for the future. And, thanks to M. Ribot's power of insight and power of exposition, it is real information that he brings.

La Morale Anglaise Contemporaine: Morale de l'Utilité et de l'Évolution. Par M. GUYAU. Ouvrage couronné par l'Academie des Sciences Morales et Politiques. Paris: G. Baillière, 1879. Pp. 420.

This is the second half of a Memoir, of which the first part was published last year under the title *La Morale d'Épicure et ses rapports avec les doctrines contemporaines*, as noted in MIND XIII., p. 140. The author tells us he was only nineteen when he wrote the Memoir in 1873 *(L'Histoire et la Critique de la Morale Utilitaire*, "crowned" in 1874), and that his ideas have naturally become somewhat modified since then, but he still gives the original text except in a few pages. The exposition, covering Bentham, Owen, Mackintosh, the two Mills, Grote, Bain, Bailey, Lewes, Sidgwick, Darwin, Spencer, extends to 184 pp. The critical part is in four books, dealing with "Ethical Method" (Inductive and Intuitive), "The Ethical End," "Moral Obligation," "The Ethical Sanction". A number of general considerations follow in the Conclusion (pp. 359-417).

De la Métaphysique. Introduction à *La Métaphysique* d'Aristote. Par J. BARTHÉLÉMY SAINT-HILAIRE, Membre de l'Institut, Sénateur. Paris: G. Baillière, 1879. Pp. 188.

The author is about to add to the list of his previous translations of Aristotle's works the *Metaphysica*, and, by way of introducing the translation presently to appear, he seeks in this little work—(1) to appreciate the value of the group of fragmentary philosophical discussions held together, in a disorder that cannot now be mended, by the traditional name; and (2) to study the nature of Metaphysic in itself and defend it against the combined attacks of Theology and Science. As the general result of the first part of his inquiry, after reviewing the main topics of the work in succession, he finds that Aristotle, by firmness of method and by simplicity, truth and depth of doctrine, takes rank with the most illustrious of metaphysical thinkers, and in particular comes near to Descartes, the father of modern philosophy. In the second part, he claims to have restored Metaphysic to its place, not only among the sciences, but at the head of them all; to have

shown that it is a science more sure and more indispensable than any other; to have indicated how the philosopher by light of reason may arrive at beliefs that can never be shaken; and to have explained what philosophy has ever been from the Greek time, what it is now, and what it must ever remain. The argument is conducted, not without vigour, from the point of view of the Cartesian philosophy, and it is interesting at this time of day, after all that has come and gone since Descartes, to read a plea urged in his name with such perfect confidence and transparency of purpose. So satisfied is M. B. St.-Hilaire with the doctrine of his great master that he does not, for example, hesitate to say (p. 126) of the later philosophy of Kant, who thought to improve upon Descartes, that "loin de là, elle a radicalement échoué : après avoir fait quelque temps beaucoup de bruit, et avoir joui d'un vogue éphémère, elle est, après moins d'un siècle, désormais oubliée"(!)

IMM. KANT'S *Kritik der reinen Vernunft*, herausgegeben von BENNO ERDMANN. Leipzig: Voss, 1878. Pp. xvi, 676.

"This edition has been undertaken because it was found that a considerable number of important differences between the first two editions of the *K. d. r. V.* have been overlooked in previous editions, and that the defects of the original text, due to Kant's hurried composition and to careless printing, require many more corrections than have hitherto been attempted. The text of the second edition is made the foundation of the present one. The differences of the first edition are set out in notes when of brief enough compass for immediate comparison, and are given in appendices when of greater length (Preface, Deduction of the Categories, Critic of the Paralogisms). The original paging of the second edition is indicated on the margin; and the editor suggests that this should in future always be employed for purposes of citation."

Kant's Kriticismus in der ersten und in der zweiten Auflage der 'Kritik der reinen Vernunft'. Von Prof. Dr. B. ERDMANN. Leipzig: Voss, 1878. Pp. xi, 247.

"Kant himself has expressly stated that the changes in the second edition of the *K. d. r. V.* were designed to clear up the obscurities of the first edition, and to remove the misunderstandings that had arisen. Accordingly the author of the present work has made it his first object to delineate the movement excited by the original edition of Kant's work from 1781 to 1787, as it may be traced in the writings of opponents, adherents, mediators, &c. He then seeks to show the effect of this movement on Kant himself, resulting in the changes of the second edition. More particularly it is made manifest by this historical investigation that the existence of things-in-themselves (including the Ego), which had been at first for Kant a self-evident, because undoubted, assumption, came to be made the subject of special proof at the expense of the consistency of his original way of thinking. The author also shows that the fundamental idea of the Kantian Criticism was not the reconstitution of Rationalism on a new basis, but the limitation of objectively valid knowledge *à priori* to the forms of possible Experience. Kant in fact regarded himself, not as an opponent, but as the successor of Hume."

Kant's Prolegomena nicht doppelt redigirt. Widerlegung der Benno Erdmann'schen Hypothese von EMIL ARNOLDT. Berlin: Liepmannssohn, 1879. Pp. 78.

Dr. E. Arnoldt of Königsberg, who intervened with remarkable effect in the bitter controversy between Trendelenburg and Kuno Fischer over the true meaning of Kant's doctrine of Space and Time in 1870, has now turned his powerful criticism upon the bold attempt of Dr. Benno Erdmann to construct a new theory of the development of Kant's critical thinking from the date of the appearance of the first edition of the *Kritik d. r. V.* in 1781. Dr. Erdmann's Kantian labours, which have been continued in the manner indicated in the two preceding notices, began with the publication of a new edition of the *Prolegomena*, shortly noticed in MIND XI. p. 430. The special feature of this edition was a typographical resolution of the work into two distinct drafts; the editor being led, by what seemed to him clear internal evidence, to suppose that a considerable number of the sections, mixed up with the others, had been originally intended by Kant to figure in a short 'Abstract' of the *Kritik*, which, upon the strength of various references in the correspondence of Hamann, it seems clear that he began, shortly after the appearance of the *Kritik* in 1781, to think of publishing. This 'Abstract,' Dr. Erdmann believes, was quickly proceeded with, and might have been published early in '82; when the famous Göttingen notice of the *Kritik* reached Kant and moved him to write the very different *Prolegg.* in answer to the misrepresentations of his doctrine, though he incorporated with this answer not a few sections of the 'Abstract'. This, according to his editor, Kant might do the more readily because, while in composing the 'Abstract' with a view to elucidating his doctrine he had had forced upon him its grave imperfections, especially at that most vital point —the Deduction of the Categories, it was precisely this part of his doctrine which the Göttingen critic had wholly failed to grasp, bringing into prominence the idealistic tendency of the less important Æsthetic instead of the empiristic strain of the far more important Analytic. Accordingly it became Kant's chief object in the *Prolegg.* ('83), and later on in the second edition of the *Kritik* ('88), to bring out into full clearness this true heart of his whole critical doctrine. So thinks Dr. Erdmann; but not so thinks Dr. Arnoldt. Nothing, he urges, can be more arbitrary than Dr. Erdmann's distinction of this or that section as belonging to an earlier draft: there is not a shadow of real difference in the sections so distinguished. Neither is there the least ground for subordinating the Æsthetic to the Analytic in point of importance: the second is meaningless without the first, nor, whatever be the difference of form in the exposition of the *Prolegg.*, is there any material difference in the later view of the Deduction of the Categories. Nor, again, is Dr. Erdmann's view of the critical doctrine as mainly empiristic by any means an adequate representation of its varied philosophic character. Upon this point and in opposition to Dr. Erdmann's related view of what he takes to be Kant's fundamental assumption—"the existence of a multiplicity

of active things-in-themselves, each corresponding to a particular phenomenon" in our experience—Dr. Arnoldt insists at some length and with extreme dialectical skill. As regards the 'Abstract' repeatedly mentioned by Hamann, Dr. Arnoldt does not doubt that Kant for a short time after the appearance of the *Kritik* in '81 contemplated some simpler kind of exposition of the main lines of his doctrine, and thinks he probably did some work upon it, which later on may have been turned to account for the *Erläuterungen* which Schultz, with Kant's approval and not without his assistance, published in 1784. The thought of a more popular 'Abstract' was probably given up by October, '81, and from that time the *Prolegg.* intended for "teachers" may have been contemplated instead. It was certainly worked at from February, '82 onwards, and, Dr. Arnoldt contends, bears absolutely no trace of such a composite character as its latest editor fancies. Kantian students should not overlook this polemical essay; it is reprinted from *Die altpreussische Monatsschrift* xvi. 1, where it first appeared.

Die Lust an der Musik. Erklärt von H. Berg. Nebst einem Anhang: *Die Lust an den Farben, den Formen und der körperlichen Schönheit.* Berlin: Behr, 1879. Pp. 58.

In this little pamphlet Herr Berg makes a new attempt to account for the pleasure of music in the light of recent scientific research. He accepts Mr. Darwin's theory that the deep emotional effects of music are echoes of the feelings awakened during ancestral courtships when the vocal organs first exercised themselves in musical tones. But this theory, he adds, is not sufficient, since it may still be asked why in these primitive wooings musical tones and rhythms should have been preferred to other possible combinations. This objection leads him to recognise in addition to a positive factor in musical pleasure, namely that accounted for by Mr. Darwin, a negative factor. This latter he formulates in the principle that "those sounds and sequences of sounds were preferred and selected which affected the ear and the sense of hearing—not in the most pleasant way, but—in the least unpleasant way". The main stress of the work is directed to showing how music has been gradually developed in accordance with this principle. After seeking to retrace the steps by which some of the musical peculiarities of the human voice were developed through the action of sexual selection, the author tries to explain how it is that our present musical elements and forms have been adopted. With respect to the former he contents himself with the well-known doctrine of harmony and discord put forth by Helmholtz. In dealing with the genesis of musical forms, Herr Berg strikes out a new and valuable line of reflection by referring the simple forms of melody and rhythm to the fundamental laws of attention. He has made himself conversant with recent investigations into the action of "expectant attention," and seeks to apply the results to the explanation of the accepted modes of musical succession. There is little doubt that the laws of attention have a good deal more to do with the forms of art

in general than is commonly supposed, and Herr Berg has done good service in thus opening up a new direction for æsthetic inquiry. The brief suggestions on the pleasure of colours and visual forms are a following out of the ideas here applied to music into other regions of art-effect. The obvious criticism on this argument is that, like most propounders of new ideas, Herr Berg greatly overrates the importance of his negative factor. The beauty of music—quite apart from its emotional effect—seems to include a good deal more than a mere avoidance of disturbing flats and of the extremes of monotony and fatiguing irregularity. Herr Berg's arguments appear to us not to touch the generally accepted idea that tone, harmony, and rhythmic melody repose immediately on certain nervous conditions of positive pleasure. [J. S.]

X.—MISCELLANEOUS.

The Senate of the University of London has adopted the new title of 'Mental and Moral Science' for its philosophical examinations of all grades, instead of the title 'Logic and Moral Philosophy' hitherto employed. When the charter of 1858 was granted, it was proposed to change the old title into 'Logic and *Mental* Philosophy,' but the change was so vehemently opposed by some of the affiliated Roman Catholic Colleges that the proposal (though strenously supported by Grote) was dropt. Some change was the more necessary now, because in the new B. Sc. regulations dating from 1876 the title had been changed to 'Logic and Psychology' for that particular degree. Also as far back as the foundation of the D. Sc. degree, the name 'Mental Science' had been introduced to mark the general head under which were ranged the various subjects of a philosophical discipline. Considering the variety of Degrees—B.A., B.Sc., M.A., D.Sc., also M.D., M.S.—into the examinations for which Psychology, Logic and Ethics enter in the scheme of the University of London, there could not easily be found a better and more comprehensive title than the one now to be used.

It is also announced in the new Calendar that, from the year 1881, Candidates for the B.A. degree may at the Second Examination elect to pass either in Mathematics or in Mental and Moral Science, instead of being required to pass in both subjects as at present. If this change shall prove to have the effect of raising the standard of the philosophical examination, there may be reason in the end to rejoice over it; but in the meantime there is room for regret that the one English Arts-degree, for which some tincture of philosophical knowledge has always been required, is about to lose its distinctive feature.

The Board of Moral Science Studies at Cambridge has reported to the Senate that in its opinion it is desirable to substitute Logic for Moral Philosophy as one of the subjects of special Examination for an Ordinary Degree; because Moral Philosophy does not appear

to be a subject well-suited for the study of undergraduates who are not reading for Honours and it has not been found to attract more than a very small number of candidates in any year. Instead of the extracts now prescribed from Ethical works of Cicero, Butler, Stewart, Mill, Whewell, and from Prof. Calderwood's *Hand-book*, the following Logical subjects are recommended: Jevons's *Elementary Lessons*, cc. 1-22; Fowler's *Inductive Logic*; Mill's *Logic;* Locke's *Essay*, Book III. and cc. 6, 7, 8, 12, 17 of Bk. IV.: the Political Economy part of the Examination to stand as before. The recommendation has just been approved of by the Senate, and the change will come into effect from June, 1880.

It is proposed to celebrate the centenary of Karl Christian Friedrich Krause's birth (6th May, 1781; d. 1832) by raising a fund to be employed partly in the publication of his still remaining manuscript works and partly in the foundation of a scholarship at the gymnasium of his native town, Eisenberg in Saxe-Altenburg. For this purpose a Committee has been formed including the names of many distinguished philosophers and publicists in Germany and other countries (particularly Spain); Profs. Flint and Lorimer of Edinburgh representing this country. Subscriptions should be sent to Herr Th. Busch, 17 Steinstrasse, Dresden, or Oberbürgermeister Laurentius in Altenburg, or Bürgermeister Nützer in Eisenberg

At the instance of Prof. Fechner, the *Akademisch-Philosophischer Verein* of Leipzig has prepared schedules for collecting statistics as to various cases of association with vowel-sounds noted by the veteran experimenter in his *Vorschule der Aesthetik*, I., p. 176, and II., p. 315, especially colours, the musical keys (major and minor), and the four temperaments (sanguine, choleric, &c.). The forms, with directions as to filling them up, may be obtained on application *An den Akademisch-Philosophischen Verein, Leipzig (Briefkasten im Paulinum).* The investigation has already brought to light certain associations that people make of colours with different keys (*e.g.*, C major is seen as white, C minor as grey, D major as yellow, E major as green, &c.); and this kind of association appears to have affected the works of musical composers. Thus Haydn in the *Creation* brings in the chord of C major at the words "And there was light" after he had represented the precedent chaos in C minor; also in the *Seasons* the wintry mist is given in C minor.

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. XIII. No. 2. Hegel —'On Romantic Art' (transl.). V. Hartmann—'On Darwinism' (transl.). J. Watson—'The World as Force'. Hegel—'On Jacob Boehme' (transl.). Schelling—'On the Study of Theology' (transl.). J. E. Cabot—'The Spatial *Quale*—an answer to W. James'. W. T. Harris—'The Science of Education (Analysis of Rosenkranz's *Paedagogics as a System*, Pt. I., with Commentary)'. Notes and Discussions (Reply of Prof. Caird to Dr. Hutchison Stirling 'On Schopenhauer in Relation to Kant' in No. 1, &c.). Book Notices.

REVUE PHILOSOPHIQUE.—IVme Année, No. 4. A. Herzen—'La loi physique de la conscience'. J. S. Mill—'Fragments inédits sur le socialisme' (fin). Th. Reinach—'Le nouveau livre de Hartmann sur la morale' (I.). A. Dastre—'Le problème physiologique de la vie' (fin). P. Regnaud—'Études de philosophie indienne'. Analyses et Comptes-rendus. Notices bibliographiques. Rev. des Périod. Correspondance ('La terminologie de M. Sh. Hodgson'). No. 5. D. Nolen—'Les maîtres de Kant' (I.). Straszewski—'Herbart: sa vie et sa philosophie d'après des publications récentes'. Th. Reinach—'Hartmann sur la morale' (II.). Rev. des Périod. No. 6. G. Séailles—'La science et la beauté: travaux recents sur l' esthétique'. Th. Reinach—'Hartmann sur la morale' (fin). Straszewski—'Herbart, &c.' (fin). Notes et Documents (G. Pouchet—'Histoire de la sensation electrique'). Analyses et Comptes-rendus. Correspondance (A. Herzen—'La conscience et la desintégration centrale'). Rev. des Périod.

LA CRITIQUE PHILOSOPHIQUE.—VIIIme Année, Nos. 6-17. C. Renouvier—'L' homme primitif selon M. H. Spencer' (6); 'La philosophie de P. Secchi' (11); 'Le determinisme et l'idée du droit selon M. A. Fouillée (14); Les idées primitives et l' origine des religions selon M. H. Spencer' (14, 15). J. Milsand—'Les grandes divisions de notre système scolaire (9, 11, 12). L. Ménard—'De l'autonomie de l' art' (10). L. Dauriac—'Idéalisme et criticisme' (13). Anon.—'Les équivoques de la question philosophique du monde extérieur' (16). Bibliographie (Littré, *Conservation, revolu- tion et positivisme* (6), &c.)

LA FILOSOFIA DELLE SCUOLE ITALIANE.—Vol. XIX. Disp. 2. L. Ferri—'L' assoluto e la mente, lettera al Conte Mamiani'. A. Tagliaferri—'Filosofia della religione: il filosofo nelle sue relazioni col dogmatismo religioso'. T. Mamiani—'Breve nota all' articolo precedente'. R. Bobba—'La dottrina della libertà secondo Spencer in rapporto colla morale'. G. Fontana—'Sull' Idea, analisi de' suoi caratteri'. L. Ferri—'Breve nota all' articolo precedente'. Bibliografia, &c.

ZEITSCHRIFT FÜR PHILOSOPHIE, &c. — Bd. LXIV. Heft 2. H. Sommer—'Die Lehre Spinoza's und der Materialismus' (II.). H. Ulrici—'Der sogenannte Spiritismus, eine wissenschaftliche Frage'. Recensionen. Bibliographie.

PHILOSOPHISCHE MONATSHEFTE.—Bd. XV. Hefte 1, 2. A. Lasson—'Ueber Gegenstand und Behandlungsart des Religionsphilosophie'. J. Freudenthal—'Ein ungedruckter Brief Kant's und eine verschollene Schrift desselben wider Hamann'. Recensionen u. Anzeigen. Bibliographie, &c. Heft 3. J. Immelmann—'Stanley Jevons über J. S. Mill'. Recensionen u. Anzeigen. Bibliographie, &c.

ZEITSCHRIFT FÜR VÖLKERPSYCHOLOGIE U. SPRACHWISSENSCHAFT.—Bd. XI., Heft 1. H. Steinthal—'Das fünfte Buch Mose: ein Beitrag zur epischen Frage'. H. Steinthal—'Zur Volksdichtung'. O. Flügel—'Das Ich im Leben der Völker' (I.). H. Steinthal—'Darstellung und Kritik der Böckhschen Encyklopädie und Methodologie der Philologie' (I.). Beurtheilungen.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. III., Heft 2. W. Wundt—'Ueber das Verhältniss der Gefühle zu den Vorstellungen'. K. Ch. Planck—'Sinnesanschauung und logisches Causalgesetz: eine Entgegnung auf die neuesten Ausführungen von E. Zeller' (II.). G. H. Schneider—'Zur Entwickelung der Willensäusserungen im Thierreich' (I.). K. Lasswitz—'Ueber Wirbelatome und stetige Raumerfüllung' (I.). A. Steudel—'Zum ethischen Problem'. Recensionen. Selbstanzeigen, &c.